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# BIO-MEDICAL BASED IEEE 2021-2022

## PROJECTS LIST

### A. MEDICAL BASED HANDHELD PRODUCTS

1. Aeterial blood gas analyzer using NODEMCU
2. Subcutaneous accelerometer-based monitoring of respiration a pre-clinical exploration
3. ICF-based community mental health care
4. Intelligent IoT (I2oT) Biomedical Wearable System based on Smartphone Application
5. Online Monitoring of Human Body Odor for the Improvement of Athlete's Health Status
6. Residual Stress Analysis in Thin Device Wafer Using Piezoresistive Stress Sensor
7. The novel concept of a portable human stress-meter
8. ISO standard implementation impact in COVID-19 erra on UV-lighting devices
9. COVID-MobileXpert: On-Device COVID-19 Patient Triage and Follow-up using Chest X-rays
10. Severity Monitoring Device for COVID-19 Positive Patients

### B. MEDICAL BASED HUMAN PHYSICAL SYSTEMS

1. Towards Wearable and Flexible Sensors and Circuits Integration for Stress Monitoring
2. A Headset Like Wearable Device to Track COVID-19 Symptoms
3. Human Dynamic Analysis and Inference system on Health problems and Stress in IT Industry by using Soft Computing Techniques
4. Toward evaluation of a ship navigator's stress based on salivary amylase activity
5. Interaction with the Paro robot may reduce psycho physiological stress responses
6. Evaluation of human stress using EEG Power Spectrum
7. Emotion induction during human-robot interaction
8. iCare-Stress: Caring system for stress
9. Modeling and Characterization of a Mechatronics System for Human Stress Detection

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10. Hybrid SVM classification technique to detect mental stress in human beings using ECG signals

## C. MEDICAL BASED AUTOMATION SYSTEMS

1. Measurement of Human Gastric Motility by Near-Infrared Light for the Assessment of Chronic Mental Stress
2. Association of Heart Rates with Stress Response Inventory Scores in Different Age Groups
3. Brainwaves stress pattern based on perceived stress scale test
4. The Role of Technology and Engineering Models in Transforming Healthcare
5. Attitude and requirement for Health Emergency Curriculum among medical students
6. Automatic Stress Detection in Working Environments From Smartphones' Accelerometer Data
7. On-chip flexible multi-layer sensors for Human stress monitoring
8. Remote Detection and Classification of Human Stress Using a Depth Sensing Technique
9. Classification of stress into emotional, mental, physical and no stress using electroencephalogram signal analysis
10. A patient-specific method for the evaluation of wall shear stress in human coronary arteries

## D. MEDICAL BASED PervasivE COMPUTING

1. COVID-19 fever symptom detection based on IoT cloud
2. Shortwave diathermy stimulation therapy
3. Infant phototherapy using UV method
4. Electronic patients weighing scale
5. Pocket held fetal heart monitoring system
6. Breathing control nebulization system
7. Measurement of inhaled / exhaled respiratory system
8. A Mini-invasive long-term bladder urine pressure measurement system
9. Initial investigation of human physical stress level using brainwaves
10. Classification of Perceived Human Stress using Physiological Signals
11. Mental stress grading based on fNIRS signals
12. The Virtual Human Breathing Relaxation System

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- 13.** Contact stresses in a patient-specific unicompartmental knee replacement
- 14.** Psychological acute stress measurement using a wireless adhesive biosensor
- 15.** Stress detection and reduction using EEG signals
- 16.** Human blood pressure simulation for photo elastic stress analysis in models of vasculature
- 17.** A Transcranial magnetic stimulator inducing near-rectangular pulses with controllable pulse width
- 18.** Telemetric intracranial pressure sensor system for biomedical applications
- 19.** MEMS based assistance for physically challenging people
- 20.** Innovative platform for Tele physiotherapy

## **E. MEDICAL BASED BIOSCIENCE**

- 1.** Wireless fall sensor with GPS location for monitoring the elderly
- 2.** Blusteth-wireless stethoscope using blue tooth
- 3.** Analysis of depth of anesthesia using monitoring device and sensors
- 4.** EMG assisted migraine therapy
- 5.** Analysis, design, and control of a transcutaneous power regulator for artificial hearts
- 6.** Body sensors: wireless access to physiological data
- 7.** Task performance is prioritized over energy reduction
- 8.** Mobile human airbag system for fall protection using MEMS sensors and embedded svm classifier
- 9.** Development of zigbee mobile router for supporting network mobility in healthcare system
- 10.** Congestion-aware, loss-resilient bio-monitoring sensor networking for mobile health applications

## **F. MEDICAL BASED 2D**

- 1.** Ambulatory center of mass prediction using body accelerations and center of foot pressure
- 2.** Bio-mechanical analysis of human hand
- 3.** Remote compact sensor for the real-time monitoring of human heartbeat and respiration rate
- 4.** Measuring and transmitting vital body signs using MEMS sensors
- 5.** Modeling of prosthetic limb rotation control by sensing rotation of residual arm bone Biomedical Engineering Projects

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6. Premature infant side-stream respiratory gas monitoring sensor
7. Patient monitoring using GSM and Zigbee for hospitals and old age homes
8. Wireless data acquisition system for remote care of newly born premature
9. Zigbee device access control and reliable data transmission in zigbee based health monitoring system
10. S-Multi sensor strategies to assist blind people: a clear-path indicator

## G. MEDICAL BASED MINI COMPUTER 3.0

1. Cough monitoring system
2. MEMS based pc commands using hand signals
3. Wireless telemetry system for the transmission of ECG signals
4. Wheelchair control using voice signals for disabled patients
5. Breath analyzer for terminally ill patients with sleep pattern analysis
6. Auto phone control using hand signals for disabled patients using MEMS
7. Impact estimation and analysis of patient during fall
8. Robot control using hand signals
9. Ultrasonic and voice based walking stick for the blind
10. Foot pressure monitor for athletes and patients
11. Automatic vehicle security system using alcohol sensor
12. Fingerprint identification based automatic teller machine
13. Involuntary anesthesia controlling system using multiple medical functions
14. Automatic timed blood pressure measuring system for patients
15. Foot control operation theater light with intensity control
16. Ultrasound therapy by using Piezo electric method
17. Respiratory monitoring system with temperature sensor and breath sensor
18. Patient fall detection using HIP and abdomen sensor
19. Breathing sensor with sleeping disorder pattern analysis
20. Non invasive human respiratory measurement

## H. MEDICAL BASED ACTUALITY MOBILITY

1. Bionic sensor based stress sensing and hip monitoring with LCD display biomedical engineering projects using MATLAB
2. Integrated patient monitoring gateway using RFID
3. Intelligent monitoring system in psychological health
4. Wireless communication based blood pressure measurement
5. Hospital emergency caring system

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- 6.** RFID based health care system
- 7.** Respiratory temperature monitor in ICU
- 8.** Reduce the potential risks for sudden infant death syndrome (sids)
- 9.** A wireless sensor network platform for healthcare services
- 10.** Electrical safety analyzer for biomedical equipments
- 11.** Internet access and rehabilitation for visually challenged people
- 12.** Development of intelligent power wheelchair assisting for people on daily life using motion recognition
- 13.** Wheelchair type biomedical system with event-recorder function
- 14.** Telephone dialing system for the blind
- 15.** Design and development of English text reading machine for visually impaired persons
- 16.** Ensemble Learning Based Postpartum Hemorrhage Diagnosis for 5G Remote Healthcare

## I. MEDICAL BASED DIGITAL TWIN

- 1.** Zigbee based patient monitoring system
- 2.** Smart medi kit- care taking system for elderly persons/patients with auto dialer
- 3.** Rfid based system for class room identification for visually impaired
- 4.** Smart paroxysm prediction& life saver system
- 5.** Intelligent robotic wheel chair for specialty operations & physically challenged
- 6.** Web-based caregiver monitoring system for assisting visually impaired people
- 7.** Head steered obstruction sensitive wheelchair
- 8.** Eye ball sensor based eye tracking automatic wheel chair movement for paralysed patients
- 9.** Multi sensor strategies to assist blind people: a clear-path indicator
- 10.** Automated vehicles for physically and visually challenged
- 11.** Smart coat with biomedical sensors for walking patients collision/accident avoidance system using ultrasonic sensors
- 12.** Movement activity monitoring of elderly people-application in remote home care systems
- 13.** Automatic medicine announcement system
- 14.** Eyeball controlled eye tracking system for physically impaired patients
- 15.** Stimulation of paralyzed muscle using infrared rays (IR)

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## J. MEDICAL BASED APPLICATION

1. PC based emergency ambulance calling system
2. Fall detection & activity monitoring for oldsters
3. Patient monitoring system (upto four parameter)
4. Ultrasound as a biochemical diganostic tool
5. Anesthesia machine model with aep simulator
6. Neuropatic foot exerciser
7. Digital pulmonary function test using microcontroller(dpft)
8. Human skin colour sensor
9. Safe gaurd for blind
10. Artificial kidney

## K. MEDICAL BASED LIGHT AND 4G DATA

1. Monitoring system for premature babies
2. EEG biofeedback and stress management
3. Snore alarm electronic device
4. Tan timer: six timing positions suited to different skin types timing affected by sunlight intensity
5. Highway hospital connecting system
6. Total quality management in healthcare
7. Aid suit
8. Microcontroller based temperature recorder and controlling system
9. i-Ball movement detector
10. Neuro-muscular stimulator
11. Wirelesh telemetry system for the transmission of ecg signals
12. Speaker and speech recognition
13. Dual parameter monitoring continuous passive movement machine
14. X-ray c-arm drive and control for imaging blood line
15. Enzyme Based Sensor for Detection of Urea in Milk
16. Nebulizer Improvement for Children Suffering from Bronchial Asthma
17. Managing Medical Technology in Australia's Health Care Systems - Planning, Prioritisation and Procurement
18. Construction of APEC e-Health Portal Site for e-Health Service Providers and Demanders in APEC area
19. A health remote monitoring application based on wireless body area networks

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- 20.** Experimental Characterization of human body communication in shield chamber
- 21.** Alzheimer's diseases detection by using deep learning algorithms
- 22.** Comparative analysis of segmentation techniques for progressive evaluation and risk identification of diabetic foot ulcers

## L. MEDICAL BASED WEB EMPIRE

- 1.** Priority-Based Time-Slot Allocation in Wireless Body Area Networks During Medical Emergency Situations: An Evolutionary Game-Theoretic Perspective
- 2.** Measurement and Analysis of Human Body Communication for Bio-Medical Application
- 3.** On-body characterization of textile antennas for biomedical health monitoring systems
- 4.** Recent wireless body sensors: Design and implementation
- 5.** Effect of load impedance on the signal loss of human body communication
- 6.** Wearable Medical Systems for p-Health
- 7.** A low power wearable transceiver for human body communication
- 8.** A Feasibility Study on the Adoption of Human Body Communication for Medical Service
- 9.** Natural Language Processing for Mimicking Clinical Trial Recruitment in Critical Care: A Semi-Automated Simulation Based on the LeoPARDS Trial
- 10.** Wearable health monitoring using capacitive voltage-mode Human Body Communication
- 11.** A Body Sensor Network Platform for In-home Health Monitoring Application
- 12.** A New Data Visualization and Digitization Method for Building Electronic Health Record
- 13.** A fast key generation method based on dynamic biometrics to secure wireless body sensor networks for p-health
- 14.** A study on intra-body communication for personal healthcare monitoring system
- 15.** Reverse effect of ground electrode on the signal loss of human body communication
- 16.** Real time health monitoring and wireless transmission: A µController application to improve human medical needs
- 17.** Design of a versatile low cost mobile health care monitoring system using an android application
- 18.** A human body communication transceiver based on on-off keying modulation

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- 19.** An accelerometer-based embedded system-on-chip for measuring human-body joint angles
- 20.** Hazardless Biomedical Sensing Data Transmission Using VLC
- 21.** Development of a Human Body Phantom Model for Wireless Body Area Network Applications
- 22.** Quantitative analysis of measurements on human body channel for body area network
- 23.** High speed intra-body communication for personal health care
- 24.** A Soldier Health Monitoring System for Military Applications
- 25.** Design and Implementation of Human Health Monitoring Platform Based on Internet of Things Technology
- 26.** Using off-the-Shelf Medical Devices for Biomedical Signal Monitoring in a Telemedicine System for Emergency Medical Services
- 27.** Pervasive health service system: insights on the development of a grid-based personal health service system
- 28.** The biomedical engineer as a driver for Health Technology innovation
- 29.** Evaluation of Human Body Characteristics for Electric Signal Transmission Based on Measured Body Impulse Response
- 30.** The methodics of medical thermography in the diagnostics of the human body musculoskeletal system

## M. MEDICAL BASED HOMINOID-P

- 1.** Ontology of Consumer Health Vocabulary: providing a formal and interoperable semantic resource for linking lay language and medical terminology
- 2.** Integration of user centered design in the development of health monitoring system for elderly
- 3.** SENS-U: Remote Human in Loop Health-Monitoring System at Home
- 4.** A Wireless Body Sensor Network System for Healthcare Monitoring Application
- 5.** Body Surface Mounted Biomedical Monitoring System using Bluetooth
- 6.** Wearable Sensing and Telehealth Technology with Potential Applications in the Coronavirus Pandemic
- 7.** utomatic Sickle Cell Anemia Detection Using Image Processing Technique
- 8.** Synthesis, stability, and in vitro oral cancer cell toxicity of human serum albumin stabilised gold nanoflowers
- 9.** Colour Image Segmentation for Malaria parasites Detection using Cacading Method

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- 10.** Robust Methods for Real-time Diabetic Foot Ulcer Detection and Localization on Mobile Devices
- 11.** COVID Patient Escape Alert System from Isolation Ward using RSSI
- 12.** Detection of White Blood Cell Cancer using Image Processing and Updated in IOT
- 13.** Chronic kidney disease prediction

## **N. IOT / LORAWAN / NODEMCU/ WoT BASED APPLICATIONS**

- 1.** Health Monitoring System Based on IoT (After Surgery)
- 2.** A Novel Approach for Early Breast Cancer Detection based on Embedded Micro-BioHeat Ultrasensitive Sensors: IoT Technology
- 3.** IOT Based Pregnancy Women Health Monitoring System for Prenatal Care
- 4.** e-Health Monitoring System with Diet and Fitness Recommendation using Machine Learning
- 5.** Aeterial Blood Gas Analyzer
- 6.** An Effective Bio-Signal-Based Driver Behavior Monitoring System Using a Generalized Deep Learning Approach
- 7.** Pre- and Post-surgical Monitoring by Laser Bio-photometry
- 8.** Automatic Anesthesia Control System
- 9.** EEG based Visualization and Analysis of Emotional processing in Major Depressive Disorder
- 10.** Prediction of cardiac rhythm based on heart rate variability features in sinus tachycardia conditions
- 11.** All-Day Mobile Healthcare Monitoring System Based on Heterogeneous Stretchable Sensors for Medical Emergency
- 12.** Conductive textile element embedded in a wearable device for joint motion monitoring
- 13.** Non invasive assessment of Tissue oxygen using spectroscopy
- 14.** PDMeter: A Wrist Wearable Device for an at-Home Assessment of the Parkinson's Disease Rigidity
- 15.** IoT Based Medical Assistant for Efficient Monitoring of Patients in Response to COVID-19
- 16.** Analysis of Obstructive Sleep Apnea using ECG Signals
- 17.** Anxiety and Depression Management For Elderly Using Internet of Things and Symphonic Melodies
- 18.** Enabling Collaborative Data Uploading in Body-to-Body Networks

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- 19.** A Novel Patient Monitoring System Using Photoplethysmography and IOT in the Age of COVID-19
- 20.** Digital Spirometer with a Mobile Application for Asthmatic Patient
- 21.** Arduino based Real Time Drowsiness and Fatigue Detection for Bikers using Helmet
- 22.** Non-invasive method of diagnosing health parameters using urinalysis
- 23.** Analysis of Tremors in Parkinson's Disease Using Accelerometer
- 24.** PARTHA: A Visually Impaired Assistance System
- 25.** Arduino based Smart Borewell Ambulance Rescue System
- 26.** Smart Garbage Monitoring System using Internet of Things(IoT)
- 27.** IoT power monitoring device using Wi-fi and Arduino
- 28.** IoT MEMS: IoT Based Paradigm for Medical Equipment Management Systems of ICUs in Light of COVID-19 Outbreak
- 29.** An IoT based System with Edge Intelligence for Rice Leaf Disease Detection using Machine Learning
- 30.** MABO - Monitoring System of Children in School (Intel IoT)
- 31.** Women Safety Night Patrolling IOT Robot
- 32.** IoT based Smart Medicine Assistive System for Memory Impairment Patient
- 33.** IOT based Syringe Infusion Pump
- 34.** Soldier Protection Vesture using IOT
- 35.** IOT Based Pregnancy Women Health Monitoring System for Prenatal Care
- 36.** LoRaWAN based Cattle Monitoring Smart System
- 37.** IoT based Smart Shoe for the Blind
- 38.** Medicine Parameters Monitoring Using IoT
- 39.** A Non Invasive Technique to Detect Thyroid using GSR & IOT
- 40.** A Non Invasive Technique based on Arduino to Detect COPD / wheezing
- 41.** Brain Age Estimation From MRI Using Cascade Networks with Ranking
- 42.** Automated Vision-based Surveillance System to Detect Drowning Incidents in Swimming Pools
- 43.** Low-Cost Heart Rate Sensor and Mental Stress Detection Using Machine
- 44.** Contactless Temperature Detection of Multiple People and Detection of Possible Corona Virus Affected Persons Using AI Enabled IR Sensor Camera
- 45.** COVID-19 Artificial Intelligence Diagnosis Using Only Cough Recordings
- 46.** A Cost-Effective Smart Walking Stick for Visually Impaired People
- 47.** IoT Based Smart Helmet and Accident Identification System

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# COVID-19 BASED IEEE 2021-2022 PROJECTS LIST

## A. COVID BASED COMPUTER 3.0

1. COVIDGR Dataset and COVID-SDNet Methodology for Predicting COVID-19 Based on Chest X-Ray Images
2. COVID-GATNet: A Deep Learning Framework for Screening of COVID-19 from Chest X-Ray Images
3. JCS: An Explainable COVID-19 Diagnosis System by Joint Classification and Segmentation
4. COVID-SEGNET: Diagnosis of Covid-19 Cases on Radiological Images using Mask R-CNN
5. Predictions of COVID-19 Infection Severity Based on Co-associations between the SNPs of Co-morbid Diseases and COVID-19 through Machine Learning of Genetic Data
6. COVID-MobileXpert: On-Device COVID-19 Patient Triage and Follow-up using Chest X-rays
7. Predictor System for Tracing COVID-19 Spread
8. COVID-19 Detection from Chest CT Images using Ensemble Deep Convolutional Neural Network
9. Classification of COVID-19 cases using Fine-Tune Convolution Neural Network (FT-CNN)
10. COVID-19Net: A Deep Neural Network for COVID-19 Diagnosis via Chest Radiographic Images
11. Accurate Detection of COVID-19 Using K-EfficientNet Deep Learning Image Classifier and K-COVID Chest X-Ray Images Dataset
12. Digital Screening Tool to Detect Covid-19 Infected People
13. COVID-19 CT Image Synthesis With a Conditional Generative Adversarial Network
14. Smart Door System with COVID-19 Risk Factor Evaluation, Contactless Data Acquisition and Sanitization
15. Tracing the Origins of COVID-19
16. Prediction of COVID-19 Cases Using CNN with X-rays
17. Detection of COVID 19 from CT Image by The Novel LeNet-5 CNN Architecture
18. The Brain on COVID-19

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- 19.** Forecasting COVID-19 via Registration Slips of Patients using ResNet-101 and Performance Analysis and Comparison of Prediction for COVID-19 using Faster R-CNN, Mask R-CNN, and ResNet-50
- 20.** Covid-19 Classification Using Deep Learning in Chest X-Ray Images
- 21.** Improving Traditional Stock Market Prediction Algorithms using Covid-19 Analysis
- 22.** H3DNN: 3D Deep Learning Based Detection of COVID-19 Virus using Lungs Computed Tomography
- 23.** The Multimodal Deep Learning for Diagnosing COVID-19 Pneumonia from Chest CT-Scan and X-Ray Images
- 24.** COVID-19 Detection using Transfer Learning with Convolutional Neural Network
- 25.** COVID-19 Cases in Iraq; Forecasting Incidents Using Box - Jenkins ARIMA Model
- 26.** COVID-19 (Coronavirus Disease) Outbreak Prediction Using a Susceptible-Exposed-Symptomatic Infected-Recovered-Super Spreaders-Asymptomatic Infected-Deceased-Critical (SEIR-PADC) Dynamic Model
- 27.** Prediction of COVID-19 confirmed, death, and cured cases in India using random forest model
- 28.** A-share Stock Reactions to the Approval of COVID-19 Vaccine Clinical Trial: An Event Study Model of Listed Pharmaceutical Firms' Returns
- 29.** Versatile Graphene Underlies New COVID-Zapping Air Filter
- 30.** Robust Technique to Detect COVID-19 using Chest X-ray Images
- 31.** A hybrid SOM-Fuzzy time series (SOMFTS) technique for future forecasting of COVID-19 cases and MCDM based evaluation of COVID-19 forecasting models
- 32.** Development and evaluation of an AI System for early detection of Covid-19 pneumonia using X-ray (Student Consortium)
- 33.** Optimum utilization of COVID-19 Testing Kits using the Principles of Computer Science Binary Search Algorithm in Pooled Sample Testing
- 34.** Prediction of COVID-19 Spreading Using Support Vector Regression and Susceptible Infectious Recovered Model
- 35.** COVID-19 Chest X-Ray Classification Using Convolutional Neural Network Architectures
- 36.** COVID-19 Fuzzy Inference System
- 37.** Fuzzy Rule-Based System for Predicting Daily Case in COVID-19 Outbreak
- 38.** Detection of Covid-19 Patients with Convolutional Neural Network Based Features on Multi-class X-ray Chest Images
- 39.** Detection of Covid-19 in Chest X-ray Image using CLAHE and Convolutional Neural Network

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# DATA MINING BASED IEEE 2021-2022

## PROJECTS LIST

### A. INFORMATION/MULTIMEDIA FORENSICS BASED APPLICATIONS

1. Optimized blind image watermarking method based on firefly algorithm in DWT-QR transform domain (**IEEE-2021**).
2. The Switching Fractional Order Chaotic System and Its Application to Image Encryption (**IEEE-2021**).
3. Image Forgery Localization via Integrating Tampering Possibility Map (**IEEE-2021**).
4. An Image-Based Approach to Detection of Fake Coins (**IEEE-2021**).
5. Con-Text: Text Detection for Fine-grained Object Classification (**IEEE-2021**).
6. Digital Video Watermarking Techniques (**IEEE-2021**).

### B. EMBEDDED BASED APPLICATIONS

1. Interfacing of DATA MINING with Arduino for face detection and tracking algorithm using serial communication (**IEEE-2021**).
2. Design and implementation of a drawbot using Data Mining and Arduino Mega (**IEEE-2021**).
3. Electric vehicle monitoring system by using DATA MINING/App Designer (**IEEE-2021**).
4. An ISFET automated output calibration system implementation on reconfigurable FPGA device with DATA MINING artificial intelligence interfacing (**IEEE-2021**).
5. Implementation of eye gaze tracking technique on FPGA-based on-screen keyboard system using verilog and DATA MINING (**IEEE-2021**).
6. Palletizing Manipulator Design and Control Using Arduino and DATA MINING (**IEEE-2021**).

### C. REMOTE SENSING & GIS BASED APPLICATIONS

1. Single image dehazing by latent region segmentation based transmission estimation and weighted L1-norm regularization (**IEEE-2021**).

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2. Ship Detection from Optical Satellite Images Based on Saliency Segmentation and Structure-LBP Feature (**IEEE-2021**).
3. Change Detection Based on Gabor Wavelet Features for Very High Resolution Remote Sensing Images (**IEEE-2021**).
4. Accurate Shadow Detection from High-Resolution Satellite Images (**IEEE-2021**).
5. A Region-Wised Medium Transmission Based Image Dehazing Method (**IEEE-2021**).

**D. BIO MEDICAL IMAGING BASED APPLICATIONS**

1. Statistical investigation of skin image for disease analyzing in rural area using Data Mining (**IEEE-2021**).
2. Reworking Multilabel Brain Tumor Segmentation (**IEEE-2021**).
3. Retinal Disease Screening through Local Binary Patterns (**IEEE-2021**).
4. Leukocytes Classification and Segmentation in Microscopic Blood Smear: A Resource-Aware Healthcare Service in Smart Cities (**IEEE-2021**).
5. An Approach to Detect Bone Tumor using Comparative Analysis of Segmentation Techniques (**IEEE-2021**).
6. Retinal Fundus Image Analysis for Diagnosis of Glaucoma (**IEEE-2021**).
7. Automated Melanoma Recognition in Dermoscopy Images via Very Deep Residual Networks (**IEEE-2021**).
8. Spatial Relationship Based Approach for Detection of Hookworm (**IEEE-2021**).
9. Wound Assessment System for Foot Ulcer Patient with Diabetes Identification based on Smartphone (**IEEE-2021**).
10. MIGS-GPU: Microarray Image Gridding and Segmentation on the GPU (**IEEE-2021**).

**E. BIOMETRIC AUTHENTICATION BASED APPLICATIONS**

1. Automatic ear detection and feature extraction using Geometric Morph metrics and convolution neural networks (**IEEE-2021**).
2. Fingerprint liveness detection using local texture features (**IEEE-2021**).
3. A development of Palm Print Recognition Techniques (**IEEE-2021**).
4. System for multimodal biometric recognition based on finger knuckle and finger vein using feature-level fusion and k-support vector machine classifier (**IEEE-2021**).

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5. Facial Expression Recognition Utilizing Local Direction-based Robust Features and Deep Belief Network (**IEEE-2021**).
6. Face detection with a Viola-Jones based hybrid network (**IEEE-2021**).
7. Towards More Accurate Iris Recognition using Cross-Spectral Matching (**IEEE-2021**).

**F. IMAGE AUGMENTATION PROCESS BASED APPLICATIONS**

1. Digital image enhancement system based on DATA MINING GUI (**IEEE-2021**).
2. Rust detection using image processing via Data Mining (**IEEE-2021**).
3. Clearing the Skies: A Deep Network Architecture for Single-Image Rain Removal (**IEEE-2021**).
4. Leave-one-out Kernel Optimization for Shadow Detection and Removal (**IEEE-2021**).
5. Affine Non-local Means Image Denoising (**IEEE-2021**).
6. LIME: Low-light Image Enhancement via Illumination Map Estimation (**IEEE-2021**).
7. Multi-Image deblurring using Complementary Sets of Fluttering Patterns (**IEEE-2021**).
8. Image Enhancement Using Morphological Contrast Enhancement for Video Based Image Analysis (**IEEE-2021**).
9. Fusion-based Variational Image Dehazing (**IEEE-2021**).

**G. INTELLIGENT VEHICLE ENFORCEMENT SYSTEM BASED APPLICATIONS**

1. Riesz Fractional Based Model for Enhancing License Plate Detection and Recognition (**IEEE-2021**).
2. Nighttime Vehicle Detection Based on Bio-Inspired Image Enhancement and Weighted Score-Level Feature Fusion (**IEEE-2021**).
3. Automatic Detection of Red Light Running Using Vehicular Cameras (**IEEE-2021**).
4. A Low-Complexity Vision-Based System for Real-Time Traffic Monitoring (**IEEE-2021**).
5. Counting vehicles in urban traffic scenes using foreground time-spatial images (**IEEE-2021**).
6. Automatic Refinement Strategies for Manual Initialization of Object Trackers (**IEEE-2021**).

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**H. SELF-DEFENSE AND DIGITAL SURVEILLANCE BASED APPLICATIONS**

1. Towards Abnormal Trajectory and Event Detection in Video Surveillance (**IEEE-2021**).
2. K-means based multiple objects tracking with long-term occlusion handling (**IEEE-2021**).
3. Universal Multimode Background Subtraction (**IEEE-2021**).
4. Anomaly Detection in Traffic Scenes via Spatial-Aware Motion Reconstruction (**IEEE-2021**).
5. Visual-Attention Based Background Modeling for Detecting Infrequently Moving Objects (**IEEE-2021**).

**I. HUMAN MACHINE INTERFACE BASED APPLICATIONS**

1. Braille code conversion to voice in various language (**IEEE-2021**).
2. Towards Detection of Bus Driver Fatigue Based on Robust Visual Analysis of Eye State (**IEEE-2021**).
3. Real-Time Bidirectional Traffic Flow Parameter Estimation from Aerial Videos (**IEEE-2021**).
4. Fingerprint based ATM (**IEEE-2021**).
5. Real Time Static and Dynamic Hand Gesture Recognition System with SURF Algorithm (**IEEE-2021**).
6. Integration of Speech, Image & Text Processing Technologies (**IEEE-2021**).
7. Banknotes detected using Image Processing Techniques (**IEEE-2021**).

**J. INDUSTRIAL AUTOMATION AND CONTROL BASED APPLICATIONS**

1. Crack Detection and Parameters Estimation on Road Images (**IEEE-2021**).
2. EBSCam: Background Subtraction for Ubiquitous Computing (**IEEE-2021**).
3. Real-time multi-feature based fire flame detection in video (**IEEE-2021**).
4. Deep Multitask Learning for Railway Track Inspection (**IEEE-2021**).

**K. SMART FARMING BASED APPLICATIONS**

1. Automatic Fruit Quality Inspection System (**IEEE-2021**).
2. Plant Disease Detection using Digital Image Processing and GSM (**IEEE-2021**).
3. Automatic Weed Detection and Smart Herbicide Spray Robot for Corn Fields (**IEEE-2021**).
4. Soil Classification using machine learning Methods (**IEEE-2021**).

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## DEEP LEARNING BASED IEEE 2021- 2022 PROJECTS LIST

### A. DL BASED THIRD EYE

1. Coronavirus infected lung CT scan image segmentation using Deep Learning
2. Early Diagnosis of Parkinson's Disease in brain MRI using Deep Learning Algorithm
3. Bird.s Eye: Analysis of Video Surveillance Data using Deep Learning
4. Machine Learning and Deep Learning Approaches for Brain Disease Diagnosis: Principles and Recent Advances
5. Diabetics Patients Analysis Using Deep Learning and Gradient Boosted Trees
6. Diabetic Retinopathy Detection by means of Deep Learning
7. Object Detection for P&ID Images using various Deep Learning Techniques
8. Super-Resolution Ultrasound Localization Microscopy Through Deep Learning
9. Machine Learning Approach for Bird Detection
10. DQR: A Deep Reinforcement Learning-based QoS Routing Protocol in Cognitive Radio Mobile Ad Hoc Networks

### B. DL BASED AURAL PROCESSING

1. Plant Disease Detection based on Deep Learning Approach
2. A Deep Learning based Scene Recognition Algorithm for Indoor Localization
3. Bigdata Enabled Realtime Crowd Surveillance Using Artificial Intelligence And Deep Learning
4. Deep Analysis of Dementia Disorder Using Artificial Intelligence to Improve Healthcare Services
5. Rapid Detection of Bacteria Using Raman Spectroscopy and Deep Learning
6. Prostate Cancer Detection Using Deep Learning and Traditional Techniques
7. Design and Evaluation of a Deep Learning Algorithm for Emotion Recognition
8. Lightweight Deep Neural Network for Joint Learning of Underwater Object Detection and Color Conversion
9. Deep learning-based techniques for the automatic segmentation of organs in thoracic computed tomography images
10. Design and Analysis of Deep-Learning Based Iris Recognition Technologies by Combination of U-Net and EfficientNet

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**C. DL BASED MACHINE-EYE**

1. Deep learning based vehicle violation detection system
2. Semantic Road Segmentation using Deep Learning
3. Automatic benign and malignant estimation of bone tumors using deep learning
4. Directional Deep Embedding and Appearance Learning for Fast Video Object Segmentation
5. Deep Learning-based Face Mask Detection Using YoloV5
6. Masked Face Recognition Using Principal component analysis and Deep learning
7. Enhanced Pain Detection and Movement of Motion with Data Augmentation based on Deep Learning
8. Design of English online teaching assistant system based on deep learning
9. Deep Learning for PET Image Reconstruction
10. Comparison of Fake News Detection using Machine Learning and Deep Learning Techniques

**D. DL BASED H2M COMMUNICATION**

1. Save Birdlife: A Novel Deep Learning method for Detecting and Automatically Diversifying Birds from the Window Glass
2. Image classification of sugar crystal with deep learning
3. Obstacle Avoidance Prediction System of Hospital Distribution Robot Based on Deep Learning
4. Comparison Multi Transfer Learning Models for Deep Fake Image Recognizer
5. Deep Learning for Accelerometric Data Assessment and Ataxic Gait Monitoring
6. Chip defect detection based on deep learning method
7. Smart Recommender System using Deep Learning
8. Systematic Study on Diagnosis of Lung Disorders using Machine Learning and Deep Learning Algorithms
9. CT Radio Genomics of Non-Small Cell Lung Cancer Using Machine and Deep Learning
10. Classification of Pavement Disease 3D Point Cloud Images Based on Deep Learning Network

**E. DL BASED BIO-AESCUAPIUS IMAGING**

1. Automatic Detection of Tea Leaf Diseases using Deep Convolution Neural Network
2. A Systematic Review: Deep Learning based E-Learning Recommendation System
3. Evaluation on a Drone Classification Method Using UWB Radar Image Recognition with Deep Learning

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4. Semantic Segmentation of Liver Tumor in Contrast-enhanced Hepatic CT by Using Deep Learning with Hessian-based Enhancer with Small Training Dataset Size
5. Emotion Recognition Based Emoji Retrieval Using Deep Learning
6. Stock Market PredictionWeb Service Using Deep Learning by LSTM
7. Deep Learning Framework using Siamese Neural Network for Diagnosis of Autism from Brain Magnetic Resonance Imaging
8. A Pseudo Lesion Generation Method for Deep Learning Based Chest X-Ray Lung Disease Detection
9. eyeSay: Eye Electrooculography Decoding with Deep Learning
10. Benchmarking Deep Learning Models for Automatic Ultrasonic Imaging Inspection

**F. DL BASED ANATOMIZE INFORMATION SYSTEM**

1. A Hybrid Deep Learning Model For Online Fraud Detection
2. Automatic Speaker Recognition using Transfer Learning Approach of Deep Learning Models
3. Fire Detection Using Deep Transfer Learning on Surveillance Videos
4. Deep Feature Aggregation Framework Driven by Graph Convolutional Network for Scene Classification in Remote Sensing
5. Deep feature normalization using rest state EEG signals for Brain-Computer Interface
6. Multi-Scale Deep Pixel Distribution Learning for Concrete Crack Detection
7. DeepKeyGen: A Deep Learning-Based Stream Cipher Generator for Medical Image Encryption and Decryption
8. Application of Deep Learning for Crowd Anomaly Detection from Surveillance Videos
9. Sentiment analysis for product rating using a deep learning approach
10. Tongue Tumor Detection in Hyperspectral Images Using Deep Learning Semantic Segmentation

**G. DL BASED DATA FORENSICS**

1. COVID-19 Recognition Based on Patient's Coughing and Breathing Patterns Analysis: Deep Learning Approach
2. Adenoid segmentation in X-ray images using U-Net
3. Deep Coupled Joint Distribution Adaptation Network: A Method for Intelligent Fault Diagnosis Between Artificial and Real Damages

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- 4.** An Analysis of Audio Classification Techniques using Deep Learning Architectures
- 5.** Sleep Disorder Diagnosis using EEG based Deep Learning Techniques
- 6.** Driver Activity Recognition Through Deep Learning
- 7.** Unsupervised gender prediction based on deep facial features
- 8.** Credit Card Fraud Detection Based on Deep Neural Network Approach
- 9.** Securing Data by Detecting Multi Channel Attacks Using Deep Learning
- 10.** PolyLaneNet: Lane Estimation via Deep Polynomial Regression

## H. DL BASED IMAGE AUGMENTATION

- 1.** A deep deformable residual learning network for SAR image segmentation
- 2.** Deep Graph-Based Multimodal Feature Embedding for Endomicroscopy Image Retrieval
- 3.** ECG biometric using 2D Deep Convolutional Neural Network
- 4.** Brake-Vision: A Machine Vision-Based Inference Approach of Vehicle Braking Detection for Collision Warning Oriented System
- 5.** MindTime: Deep Learning Approach for Borderline Personality Disorder Detection
- 6.** AE-DCNN: Autoencoder Enhanced Deep Convolutional Neural Network For Malware Classification
- 7.** Brain Age Estimation based on Brain MRI by an Ensemble of Deep Networks
- 8.** Annotation Tool and Urban Dataset for 3D Point Cloud Semantic Segmentation
- 9.** Motor Imagery EEG Signal Classification based on Deep Transfer Learning
- 10.** Preterm Newborn Presence Detection in Incubator and Open Bed Using Deep Transfer Learning
- 11.** Pedestrian Detection on Multispectral Images in Different Lighting Conditions
- 12.** Histopathological Transfer Learning for Acute Lymphoblastic Leukemia Detection
- 13.** Infrared Image Super Resolution with Deep Neural Networks
- 14.** Deep Learning Based Gait Analysis for Contactless Dementia Detection System from Video Camera
- 15.** DONet: Dual-Octave Network for Fast MR Image Reconstruction
- 16.** Classification of Metastatic Breast Cancer Cell using Deep Learning Approach
- 17.** Education 4.0 - Artificial Intelligence Assisted Higher Education: Early recognition System with Machine Learning to support Students' Success
- 18.** Machine Learning based Fast Reading Algorithm for Future ICT based Education
- 19.** Research on embedded Braille learning machine based on STM32
- 20.** Analysis And Visualization of Online Learning Data Based on Crowd Sensing

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# MACHINE LEARNING BASED IEEE 2021- 2022 PROJECTS LIST

## A. ML BASED 3<sup>rd</sup> EYE

1. Coronavirus infected lung CT scan image segmentation using Deep Learning
2. Development of an interactive e-learning system to improve manufacturing technology education
3. Enhanced Dermatoscopic Skin Lesion Classification using Machine Learning Techniques
4. Supervised and Unsupervised Machine Learning based Review on Diabetes Care
5. Detection of Adulteration in Fruits Using Machine Learning
6. Video QoE Inference with Machine Learning
7. Dynamic Churn Prediction using Machine Learning Algorithms - Predict your customer through customer behaviour
8. Comparative Study of Machine Learning Algorithms for Fraud Detection in Blockchain
9. A machine learning approach for opinion mining online customer reviews
10. Spruce Fitness Observation Method using IoT and Machine Learning

## B. ML BASED DATA ANALYTICS

1. Constrained voting extreme learning machine and its application
2. Improvement in automated diagnosis of soft tissues tumors using machine learning
3. Classification and Prediction of severity of Inflammatory Bowel Disease using Machine Learning
4. A Machine Learning Approach for Collusion Detection in Electricity Markets Based on Nash Equilibrium Theory
5. Hybrid Machine Learning Classification Technique for Improve Accuracy of Heart Disease
6. Prediction of Chronic Kidney Disease - A Machine Learning Perspective
7. A Hybrid Machine Learning and Data Mining Based Approach to Network Intrusion Detection
8. A Novel Approach on classification in Machine Learning model-based USG Cardiogram Images
9. Social Media Analysis with Machine Learning

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- 10.** Comparative Question Answering System based on Natural Language Processing and Machine Learning

**C. ML BASED PREDICTIVE ANALYTICS**

- 1.** Classification of diabetic walking through machine learning: Survey targeting senior citizens
- 2.** Real time-Employee Emotion Detection system (RtEED) using Machine Learning
- 3.** Detection of Breast Cancer using Machine Learning Algorithms
- 4.** Fetal Health Classification Based on Machine Learning
- 5.** Machinery Fault Detection Using Autoencoder and Online Sequential Extreme Learning Machine
- 6.** CT Radio Genomics of Non-Small Cell Lung Cancer Using Machine and Deep Learning
- 7.** A Novel Machine Learning Based Screening Method For High-Risk Covid-19 Patients Based On Simple Blood Exams
- 8.** Prediction of Students Academic Performance Utilizing Hybrid Teaching-Learning based Feature Selection and Machine Learning Models
- 9.** Sentiment Analysis of Arabic Tweets about Violence Against Women using Machine Learning
- 10.** Bone Deformity Identification Using Machine Learning

**D. ML BASED SERVICE PERSONALIZATION**

- 1.** Review on Image Classification Techniques in Machine Learning for Satellite Imagery
- 2.** Prediction of Air Pollutants Using Supervised Machine Learning
- 3.** An Implementation of Machine Learning for Parkinson's Disease DiagnosisAn Intelligent Machine Learning Support System for Glaucoma Prediction Among Diabetic Patients
- 4.** Automated Detection and Classification of Breast Cancer Tumour Cells using Machine Learning and Deep Learning on Histopathological Images
- 5.** Performance Analysis of Machine Learning Based Fault Detection for Cloud Infrastructure
- 6.** Design of face detection and recognition system to monitor students during online examinations using Machine Learning algorithms
- 7.** Weightless Swarm Algorithm as Transformation Technique for Improving the Performance of Machine Learning Algorithms
- 8.** Analysis of Performance of Machine Learning Algorithms in Detection of Flowers

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9. Farming Made Easy using Machine Learning
10. Machine Learning Approaches for Early Diagnosis and Prediction of Fetal Abnormalities

**E. ML BASED HUMAN ANALYSIS**

1. Machine Learning Approach to Efficient Hyperparameters Search for Video Streams Semantic Analysis Algorithms
2. Comprehensive Analysis for Fraud Detection of Credit Card through Machine Learning
3. Brain Tumor Detection: An Application Based on Machine Learning
4. Image Recognition Algorithm of Electrical Engineering Equipment Based on Machine Learning Method
5. An Ensemble Learning Model for Agricultural Irrigation Prediction
6. The Application of Machine Learning in League Index Prediction
7. Efficient early prediction and diagnosis of diseases using machine learning algorithms for IoMT data
8. Review on Machine Learning Frameworks in Drivers' Physiological Signal Analysis to Detect Stress
9. Prediction of Weather Forecast for Smart Agriculture supported by Machine Learning
10. Forecasting Dengue Fever Using Machine Learning Regression Techniques

**F. ML BASED COMPUTER VISION**

1. Intrusion Detection Systems Based on Machine Learning Algorithms
2. Machine Learning Algorithms for Regression Analysis and Predictions of Numerical Data
3. A Robust Model for Handwritten Digit Recognition using Machine and Deep Learning Technique
4. Non-invasive Diabetes Mellitus Detection System using Machine Learning Techniques
5. A Novel Approach for the Early Recognition of Diabetic Retinopathy using Machine Learning
6. Sparsification via Compressed Sensing for Automatic Speech Recognition
7. Prediction of Lung Cancer Using Machine Learning Technique
8. Medical Prescription Recognition using Machine Learning
9. Securing Multimedia Content Using Watermark and Digital Signature
10. Plant Disease Detection based on Deep Learning Approach

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**G. ML BASED EVOLUTIONARY COMPUTATION**

1. High Dimensional Text Document Clustering and Classification using Machine Learning Methods
2. Self-Regulated Learning for Egocentric Video Activity Anticipation
3. High Dimensional Text Document Clustering and Classification using Machine Learning Methods
4. Self-Regulated Learning for Egocentric Video Activity Anticipation
5. Multiview-Based Random Rotation Ensemble Pruning for Hyperspectral Image Classification
6. Arterial Disease Computational Prediction and Health Record Feature Ranking Among Patients Diagnosed With Inflammatory Bowel Disease
7. Ensemble Learning Based Postpartum Hemorrhage Diagnosis for 5G Remote Healthcare
8. Scalable Fuzzy Keyword Ranked Search over Encrypted Data on Hybrid Clouds
9. Application of Blockchain for the Security of Decentralized Cloud Computing
10. Mathematical validation of proposed machine learning classifier for heterogeneous traffic and anomaly detection

**H. ML BASED EXPERT SYSTEMS**

1. Implementation of Least Significant Bit Image Steganography with Advanced Encryption Standard
2. Hiding Data Using Efficient Combination of RSA Cryptography, and Compression Steganography Techniques
3. Enhancing Security of Image Steganography Using Visual Cryptography
4. Enhanced the Data Hiding in Geometrical image using stego-Crypto techniques with machine learning
5. Robust Reversible Watermarking in Encrypted Image with Secure Multi-party based on Lightweight Cryptography
6. A Video Steganography Scheme Based on Post-Quantum Cryptography
7. Towards Achieving Keyword Search over Dynamic Encrypted Cloud Data with Symmetric-Key Based Verification
8. Blending of Cryptography and HLSB Steganography Techniques for Digital Images
9. Design and Implementation of a Secure QR Payment System Based on Visual Cryptography
10. ALMS: Asymmetric Lightweight Centralized Group Key Management Protocol for VANETs

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# EMBEDDED SYSTEMS / COMMUNICATION / NETWORKING BASED IEEE 2021 PROJECTS LIST

## A. BIOMEDICAL BASED APPLICATIONS

1. Health Monitoring System Based on IoT (After Surgery)
2. A Novel Approach for Early Breast Cancer Detection based on Embedded Micro-BioHeat Ultrasensitive Sensors: IoT Technology
3. IOT Based Pregnancy Women Health Monitoring System for Prenatal Care
4. e-Health Monitoring System with Diet and Fitness Recommendation using Machine Learning
5. Aeterial Blood Gas Analyzer
6. An Effective Bio-Signal-Based Driver Behavior Monitoring System Using a Generalized Deep Learning Approach
7. Pre- and Post-surgical Monitoring by Laser Bio-photometry
8. Automatic Anesthesia Control System
9. EEG based Visualization and Analysis of Emotional processing in Major Depressive Disorder
10. Prediction of cardiac rhythm based on heart rate variability features in sinus tachycardia conditions
11. All-Day Mobile Healthcare Monitoring System Based on Heterogeneous Stretchable Sensors for Medical Emergency
12. Conductive textile element embedded in a wearable device for joint motion monitoring
13. Non invasive assessment of Tissue oxygen using spectroscopy
14. PDMeter: A Wrist Wearable Device for an at-Home Assessment of the Parkinson's Disease Rigidity
15. IoT Based Medical Assistant for Efficient Monitoring of Patients in Response to COVID-19
16. Analysis of Obstructive Sleep Apnea using ECG Signals
17. Anxiety and Depression Management For Elderly Using Internet of Things and Symphonic Melodies
18. Enabling Collaborative Data Uploading in Body-to-Body Networks

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**B. ECO FRIENDLY BASED APPLICATIONS**

1. Passive Radar Based on LOFAR Radio Telescope for Air and Space Target Detection
2. A Novel Patient Monitoring System Using Photoplethysmography and IOT in the Age of COVID-19
3. Digital Spirometer with a Mobile Application for Asthmatic Patient
4. Arduino based Real Time Drowsiness and Fatigue Detection for Bikers using Helmet
5. Non-invasive method of diagnosing health parameters using urinalysis
6. Analysis of Tremors in Parkinson's Disease Using Accelerometer
7. PARTHA: A Visually Impaired Assistance System
8. Arduino based Smart Borewell Ambulance Rescue System

**C. IOT / LORAWAN / NODEMCU/ WoT BASED APPLICATIONS**

1. Smart Garbage Monitoring System using Internet of Things(IoT)
2. IoT power monitoring device using Wi-fi and Arduino
3. IoT MEMS: IoT Based Paradigm for Medical Equipment Management Systems of ICUs in Light of COVID-19 Outbreak
4. An IoT based System with Edge Intelligence for Rice Leaf Disease Detection using Machine Learning
5. MABO - Monitoring System of Children in School (Intel IoT)
6. Women Safety Night Patrolling IOT Robot
7. IoT based Smart Medicine Assistive System for Memory Impairment Patient
8. IOT based Syringe Infusion Pump
9. Smart Sericulture System Based On IoT and Image Processing Technique
10. Designing IoT based Posture Monitoring System
11. IoT Based Harvesting System with Image Recognition
12. Soldier Protection Vesture using IOT
13. IOT Based Pregnancy Women Health Monitoring System for Prenatal Care
14. Intelligent Child Safety System using Machine Learning in IoT Devices
15. Smart Kitchen Wardrobe System Based on IoT
16. IoT- Deep Learning based Prediction of Amount of Pesticides and Diseases in Fruits
17. WiFi-Sleep: Sleep Stage Monitoring Using Commodity Wi-Fi Devices
18. Hybrid ZigBee and WiFi Wireless Sensor Networks for Hydroponic Monitoring
19. LoRaWAN based Cattle Monitoring Smart System

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- 20.** LoRaWAN Performances for Underground to Aboveground Data Transmission
- 21.** A LoRaWAN Network Infrastructure for the Remote Monitoring of Offshore Sea Farms
- 22.** Electric Energy Meter System Integrated with Machine Learning and Conducted by Artificial Intelligence of Things – AioT
- 23.** Development of IoT Based Logistic Vehicle Maintenance System
- 24.** IoT based Smart Shoe for the Blind
- 25.** Medicine Parameters Monitoring Using IoT
- 26.** IoT Instrumented Food and Grain Warehouse Traceability System for Farmers
- 27.** Design and Development of Cognitive IoT Assistance System for Visually Impaired
- 28.** CoughMatch – Subject Verification Using Cough for Personal Passive Health Monitoring
- 29.** A Non Invasive Technique to Detect Thyroid using GSR & IOT
- 30.** A Non Invasive Technique based on Arduino to Detect COPD / wheezing

**D. HOMINOID-P / NANO-ROBOT BASED APPLICATIONS**

- 1.** Mind Wave Controlled Assistive Robot
- 2.** Pipeline Robot Based on Umbrella-shaped Flexible Expansion
- 3.** Human Following Robot
- 4.** Precision agriculture using hanging robot
- 5.** IoT based Smart Sensing and Alarming System with Autonomous Guiding Robots for Efficient Fire Emergency Evacuation
- 6.** Voice Assisted and Gesture Controlled Companion Robot
- 7.** Development of Surveillance Robot to Monitor the Work Performance in Hazardous Area
- 8.** Sensor Controlled Defense Purpose Robot for Land Mine Detection
- 9.** Image Processing Based Human Pursuing Robot

**E. ENERGY GENERATION BASED APPLICATIONS**

- 1.** Conversion of Sound Energy into Electrical Energy in Highly Populated Areas
- 2.** A consumer-based approach to the design of distributed energy systems with solar photovoltaic generation
- 3.** Electricity generation from food waste-based bioenergy with arduino
- 4.** Power Generation using Hybrid Energy System for Domestic Purpose (TEG and Piezo plate)

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5. Atmospheric Water Generator using Peltier device
6. Design of an Advanced Piezoelectric Footstep Power Generation System
7. Energy Harvesting Potential from Living Plants using NodeMCU
8. design and development of energy generation unit from fog using DHT & ESP8266

**F. AI/MI/DL/ MINI COMPUTER 3.0 BASED APPLICATIONS**

1. Brain Age Estimation From MRI Using Cascade Networks with Ranking Loss
2. WasteAI: Estimation and Prediction of Waste
3. CNN Based Aerial Image processing model for Women Security and Smart Surveillance
4. Implementation of Smart Animal Tracking System Based on Artificial Intelligence Technique
5. Smart Bank Locker Using Fingerprint Scanning and Image Processing
6. Automated Vision-based Surveillance System to Detect Drowning Incidents in Swimming Pools
7. Low-Cost Heart Rate Sensor and Mental Stress Detection Using Machine Learning
8. Real-time Soil Nutrient detection and Analysis
9. Mental and Physical Health Management System Using ML, Computer Vision and IoT Sensor Network
10. Contactless Temperature Detection of Multiple People and Detection of Possible Corona Virus Affected Persons Using AI Enabled IR Sensor Camera
11. Artificial Intelligence based Self-Driving Car
12. COVID-19 Artificial Intelligence Diagnosis Using Only Cough Recordings

**G. DIGITAL TWIN BASED APPLICATIONS**

1. IOT based Electrical Device Surveillance and Control System
2. IoT based Border Security System using Machine Learning
3. A Cost-Effective Smart Walking Stick for Visually Impaired People
4. IoT Based Smart Watercraft System
5. An IoT Based Real-time Railway Fishplate Monitoring System for Early Warning
6. SGF-MD: Behavior Rule Specification-Based Distributed Misbehavior Detection of Embedded IoT Devices in a Closed-Loop Smart Greenhouse Farming System

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7. IoT Based Smart Helmet and Accident Identification System
8. Design of Wearable Device for Child Safety
9. IoT Based Realtime Automatic Headlight Dimmer System
10. L & M Farm: A Smart Farm based on LoRa & MQTT
11. Deploying Visible Light Communication for Alleviating Light Pollution
12. A Smart User-Centric Visible Light Communication System
13. A Real-time Vehicular Visible Light Communications for Smart Transportation

**H. E-COM AND BANKING BASED APPLICATIONS**

1. Internet of Things (IoT) for Bank Locker Security System
2. Augmenting Banking and FinTech with Intelligent Internet of Things Technology
3. Enhanced Security Feature of ATM's Through Facial Recognition
4. ATM Security System Using Arduino
5. Impact of Video Surveillance Systems on ATM PIN Security
6. The Biometric Cardless Transaction with Shuffling Keypad Using Proximity Sensor
7. A New Approach to Detect Anomalous Behaviour in ATMs
8. Interactive ATM For Visually Challenged
9. Biometrically Secured ATM Vigilance System
10. Secure Card-less ATM Transactions

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# PYTHON BASED IEEE 2021-2022

## PROJECTS LIST

### A. Python Based Scripting Language

1. Machine Learning and Image Processing Based Autonomous Vehicle Design
2. Spot Welding Defect Detection Using Synthetic Image Dataset on Convolutional Neural Networks
3. Vehicle Number Plate Detection Using Python and Open CV
4. Online Digital Cheque Clearance and Verification System using Block Chain
5. Disease Detection in Fruits using Image Processing
6. Analysis of Remotely Sensed Images Through Social Media
7. A Modified Convolutional Neural Networks For MRI-based Images For Detection and Stage Classification Of Alzheimer Disease
8. Drowsiness Detection System for Drivers Using Image Processing Technique
9. Pre-trained VGG-16 with CNN Architecture to classify X-Rays images into Normal or Pneumonia
10. Anomaly Detection in Astronomical Objects of Galaxies Using Deep Learning

### B. Python Based CPython

1. Early Diagnosis of Parkinson's Disease in brain MRI using Deep Learning Algorithm
2. Crack Detector Automation for Roads by Deep Learning
3. Image Based Automatic Traffic Surveillance System Through Number-Plate identification And Accident Detection
4. Real-time Driver Drowsiness Detection based on Eye Movement and Yawning using Facial Landmark
5. Prediction Alzheimer's disease from MRI images using deep learning
6. Estimating Lung Capacity in Pulmonary Fibrosis Patients via Computerized Tomography (CT) Scan Data and Machine Learning
7. A Deep Learning Based Diabetic Retinopathy Detection from Retinal Images
8. Anti-Spoofing Door Lock Using Face Recognition and Blink Detection
9. Edge Computing System applying Integrated Object Recognition based on Deep Learning
10. A Real-Time Non-Contact Heart Rate Measurement based on Imaging Photoplethysmography (iPPG)-Power Spectral Density (PSD)

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**C. Python Based PyPy**

1. Exploratory Data Analysis on Breast cancer dataset about Survivability and Recurrence
2. COVID-XR: A Web Management Platform for Coronavirus Detection on X-ray Chest Images
3. Vehicle Detection and Tracking using YOLO and DeepSORT
4. Plant Disease Detection using Convolutional Neural Networks
5. Robust Reversible Watermarking in Encrypted Image with Secure Multi-party based on Lightweight Cryptography
6. A Video Steganography Scheme Based on Post-Quantum Cryptography
7. Towards Achieving Keyword Search over Dynamic Encrypted Cloud Data with Symmetric-Key Based Verification
8. Blending of Cryptography and HLSB Steganography Techniques for Digital Images
9. Design and Implementation of a Secure QR Payment System Based on Visual Cryptography
- 10.

**D. Python Based Stackless Python**

1. Review on Image Classification Techniques in Machine Learning for Satellite Imagery
2. Prediction of Air Pollutants Using Supervised Machine Learning
3. An Implementation of Machine Learning for Parkinson's Disease DiagnosisAn Intelligent Machine Learning Support System for Glaucoma Prediction Among Diabetic Patients
4. Automated Detection and Classification of Breast Cancer Tumour Cells using Machine Learning and Deep Learning on Histopathological Images
5. Performance Analysis of Machine Learning Based Fault Detection for Cloud Infrastructure
6. Design of face detection and recognition system to monitor students during online examinations using Machine Learning algorithms
7. Weightless Swarm Algorithm as Transformation Technique for Improving the Performance of Machine Learning Algorithms
8. Analysis of Performance of Machine Learning Algorithms in Detection of Flowers
9. Farming Made Easy using Machine Learning
10. Machine Learning Approaches for Early Diagnosis and Prediction of Fetal Abnormalities

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**E. Python Based MicroPython**

1. Automatic Detection of Tea Leaf Diseases using Deep Convolution Neural Network
2. A Systematic Review: Deep Learning based E-Learning Recommendation System
3. Evaluation on a Drone Classification Method Using UWB Radar Image Recognition with Deep Learning
4. Semantic Segmentation of Liver Tumor in Contrast-enhanced Hepatic CT by Using Deep Learning with Hessian-based Enhancer with Small Training Dataset Size
5. Emotion Recognition Based Emoji Retrieval Using Deep Learning
6. Stock Market PredictionWeb Service Using Deep Learning by LSTM
7. Deep Learning Framework using Siamese Neural Network for Diagnosis of Autism from Brain Magnetic Resonance Imaging
8. A Pseudo Lesion Generation Method for Deep Learning Based Chest X-Ray Lung Disease Detection
9. eyeSay: Eye Electrooculography Decoding with Deep Learning
10. Benchmarking Deep Learning Models for Automatic Ultrasonic Imaging Inspection

**F. Python Based CircuitPython**

1. COVID-19 Recognition Based on Patient's Coughing and Breathing Patterns Analysis: Deep Learning Approach
2. Adenoid segmentation in X-ray images using U-Net
3. Deep Coupled Joint Distribution Adaptation Network: A Method for Intelligent Fault Diagnosis Between Artificial and Real Damages
4. An Analysis of Audio Classification Techniques using Deep Learning Architectures
5. Sleep Disorder Diagnosis using EEG based Deep Learning Techniques
6. Driver Activity Recognition Through Deep Learning
7. Unsupervised gender prediction based on deep facial features
8. Credit Card Fraud Detection Based on Deep Neural Network Approach
9. Securing Data by Detecting Multi Channel Attacks Using Deep Learning
10. PolyLaneNet: Lane Estimation via Deep Polynomial Regression

**G. Python Based Jython**

1. A Hybrid Deep Learning Model For Online Fraud Detection
2. Automatic Speaker Recognition using Transfer Learning Approach of Deep Learning Models

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- 3.** Fire Detection Using Deep Transfer Learning on Surveillance Videos
- 4.** Deep Feature Aggregation Framework Driven by Graph Convolutional Network for Scene Classification in Remote Sensing
- 5.** Deep feature normalization using rest state EEG signals for Brain-Computer Interface
- 6.** Multi-Scale Deep Pixel Distribution Learning for Concrete Crack Detection
- 7.** DeepKeyGen: A Deep Learning-Based Stream Cipher Generator for Medical Image Encryption and Decryption
- 8.** Application of Deep Learning for Crowd Anomaly Detection from Surveillance Videos
- 9.** Sentiment analysis for product rating using a deep learning approach
- 10.** Tongue Tumor Detection in Hyperspectral Images Using Deep Learning Semantic Segmentation
- 11.** Brain Age Estimation From MRI Using Cascade Networks with Ranking Loss
- 12.** WasteAI: Estimation and Prediction of Waste
- 13.** CNN Based Aerial Image processing model for Women Security and Smart Surveillance
- 14.** Implementation of Smart Animal Tracking System Based on Artificial Intelligence Technique
- 15.** Smart Bank Locker Using Fingerprint Scanning and Image Processing
- 16.** Automated Vision-based Surveillance System to Detect Drowning Incidents in Swimming Pools
- 17.** Low-Cost Heart Rate Sensor and Mental Stress Detection Using Machine Learning
- 18.** Real-time Soil Nutrient detection and Analysis
- 19.** Mental and Physical Health Management System Using ML, Computer Vision and IoT Sensor Network
- 20.** Contactless Temperature Detection of Multiple People and Detection of Possible Corona Virus Affected Persons Using AI Enabled IR Sensor Camera
- 21.** Artificial Intelligence based Self-Driving Car
- 22.** COVID-19 Artificial Intelligence Diagnosis Using Only Cough Recordings
- 23.** Automatic ear detection and feature extraction using Geometric Morph metrics and convolution neural networks
- 24.** Fingerprint liveness detection using local texture features
- 25.** A development of Palm Print Recognition Techniques

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## BIGDATA BASED IEEE 2021-2022

### PROJECTS LIST

#### A. Collaborations with Bigdata & Script Languages

1. A Chemical Monitoring and Prediction System in Semiconductor Manufacturing Process Using Bigdata and AI Techniques
2. Bigdata Enabled Realtime Crowd Surveillance Using Artificial Intelligence And Deep Learning
3. Monitoring People Moving during Covid-19 Pandemic in the Emilia-Romagna Region
4. Big Data Analytics based Smart Agriculture
5. GeoBD2: Geospatial Big Data Deduplication Scheme in Fog Assisted Cloud Computing Environment
6. Big Data Analytics Tools: Twitter API and Spark
7. Big Data Platform for Intelligence Industrial IoT Sensor Monitoring System Based on Edge Computing and AI
8. Big data Analysis on The Management Content of College Students' Mental Health Education
9. Analysis on Public Crisis Management Issues and Decision-making Based on Big Data in the Post-Epidemic Era
10. Machine Learning-Based Intrusion Detection System for Big Data Analytics in VANET
11. Sentiment Analysis of Meeting Room
12. A credit loan optimization scheme based on big data analysis under COVID-19
13. Deep Residual Learning-Based Enhanced JPEG Compression in the Internet of Things
14. Cross-Domain Evaluation for Vehicle Re-Identification
15. CT Image Segmentation of Rectal Tumor Based on U-Net Network
16. Long-tailed Recognition of Peach Leaf Diseases Images Based on Decoupling Representation and Classifier
17. Design of Electricity Market Big Data Analysis System Based on Hybrid Encryption and Secure Transmission
18. Diagnosis of COVID-19 from chest X-ray images using wavelets-based depthwise convolution network

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## VLSI BASED IEEE 2021-2022 PROJECTS

### LIST

- 1.** Design/System Technology Co-Optimization for 3nm Node and Beyond
- 2.** Scalable RRAM Based in-memory Computing Design for Embedded AI
- 3.** Flash LiDAR for Autonomous Driving
- 4.** SPAD LiDAR: From Physical Properties to Signal Processing
- 5.** Second-Order Sliding-Mode Current Controller for LC-Coupling Hybrid Active Power Filter
- 6.** An 800 MHz-to-3.3 GHz 20-MHz Channel Bandwidth WPD CMOS Power Amplifier For Multiband Uplink Radio Transceivers
- 7.** CNN Inference Using a Preprocessing Precision Controller and Approximate Multipliers With Various Precisions
- 8.** A Wide-PCE-Dynamic-Range CMOS Cross-Coupled Differential-Drive Rectifier for Ambient RF Energy Harvesting
- 9.** VLSI Implementation of Improved Sobel Edge Detection Algorithm
- 10.** Impact of the Bitcell Topology on the Multiple Cell Upsets Observed in VLSI Nanoscale SRAMs
- 11.** Revisiting the Utility of Transmission Gate and Passtransistor Logic Styles in CMOS VLSI Design Electromigration Improvement by Graphene on Cu Wire for Next Generation VLSI
- 12.** Design and Study of Dadda Multiplier by using 4:2 Compressors and Parallel Prefix Adders for VLSI Circuit Designs
- 13.** Real-Time SSDLite Object Detection on FPGA Ultra-Elastic CGRAs for Irregular Loop Specialization
- 14.** Droplet Transportation in MEDA-Based Biochips: An Enhanced Technique for Intelligent Cross-Contamination Avoidance
- 15.** ATA: Attentional Non-Linear Activation Function Approximation for VLSI-Based Neural Networks
- 16.** Dielectric-Modulated Bulk-Planar Junctionless Field-Effect Transistor for Biosensing Applications
- 17.** Fully Integrated Electronic-Photonic Ultrasound Receiver Array for Endoscopic Imaging Applications in a Zero-Change 45nm CMOS-SOI Process
- 18.** NbN-Gated GaN Transistor Technology for Applications in Quantum Computing Systems

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**19.** Solid state qubits: how learning from CMOS fabrication can speed-up progress in Quantum Computing

**20.** A 6.54-to-26.03 TOPS/W Computing-In-Memory RNN Processor using Input Similarity Optimization and Attention-based Context-breaking with Output Speculation



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# RASPBERRY PI BASED IEEE 2021-2022

## PROJECTS LIST

1. Analysis Of Air Pollution By Using Raspberry Pi-IoT
2. Development of a Voice-controlled Intelligent Wheelchair System using Raspberry Pi
3. Secure Home Entry Using Raspberry Pi with Notification via Telegram
4. Reliable Identity Management System Using Raspberry Pi
5. Raspberry Pi Based Handheld Through-Wall Radar Detection System
6. Raspberry Pi based Automatic Door Control System
7. Facial Recognition based Attendance System Using CNN and Raspberry Pi
8. Raspberry PI Based Smart Projector
9. Low Cost System for Terrestrial Trunked Radio Signals Monitoring Based on Software Defined Radio Technology and Raspberry Pi 4
10. Framework for Managing Servers or Cluster of Servers & hardware Controlled by Raspberry pi or Servers
11. Real-Time Smart Home Surveillance System of Based on Raspberry Pi
12. Webpage controlled surveillance bot using Raspberry Pi
13. Prototype of Air Conditioners Control Systems via Line Chatbot using Raspberry Pi
14. Detection of Vehicle Maximum Speed with an Infrared Sensor Based on Raspberry Pi 3 b +
15. Face recognition on Raspberry Pi based on MobileNetV2
16. Real-time video monitoring of vehicular traffic and adaptive signal change using Raspberry Pi
17. IoT Based Voice Controlled Raspberry PI Smart Mirror
18. Angular and Jenkins Based System for Remote Execution of Tasks on Raspberry Pi Cluster
19. A prototype of Baby Monitoring Use Raspberry Pi
20. Traffic Management by Monitoring Weather Parameters and Pollutants Remotely using Raspberry Pi
21. Raspberry Pi based Smart Library for Visually Challenged Citizens
22. Analyzing ECG waves in Fog Computing Environment using Raspberry Pi Cluster
23. Analysis and Monitoring Air Quality System using Raspberry PI
24. Surveillance Camera using IoT and Raspberry Pi
25. Raspberry Pi Based Wearable Reader For Visually Impaired People with Haptic Feedback

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- 26.** Real-Time Python: Recent Advances in the Raspberry Pi Plus Arduino Real-Time Control Approach
- 27.** Implementation of the Nonbinary Encoder and Decoder for Systematic Low Density Parity Check Codes on Raspberry-pi boards
- 28.** Design and Developement of an Embedded Based Device for the Detection of Toxic Gases with Raspberry Pi
- 29.** Intelligent HMI and Control for Steering a Powered Wheelchair Using a Raspberry Pi Microcomputer
- 30.** Smart Home Equipment Control System with Raspberry Pi and Yocto
- 31.** Surveillance and Controlling of Firebird-V Based Hexapod using Raspberry Pi
- 32.** Design of smart home controller based on raspberry PI
- 33.** Smart Buggy: An IoT Based Smart Surveillance Robotic Car Using Raspberry Pi
- 34.** Automated Exterior Wall Painting Robot Using Raspberry Pi
- 35.** Multi-User System for Remote Access to the Resources of the Educational Computer Cluster Based on Single Board Diskless Computer Raspberry PI 3 Model B as a Service
- 36.** An Efficient Car Parking Management System using raspberry-pi
- 37.** Detection of Diabetic peripheral neuropathy using a raspberry pi with the help of temperature sensor
- 38.** An intelligent baby monitoring system based on Raspberry PI, IoT sensors and convolutional neural network
- 39.** The Practice of Mapping-based Navigation System for Indoor Robot with RPLIDAR and Raspberry Pi
- 40.** Raspberry Pi Based Weather Reporting over IoT
- 41.** Adaptive Active Noise Cancelling System for Headphones on Raspberry Pi Platform
- 42.** Implementation of Voice Based Hot-Cold Water Dispenser System Using Raspberry Pi 3
- 43.** Indoor Intrusion Detection and Filtering System Using Raspberry Pi
- 44.** On the use of Deep Learning Enabled Face Mask Detection For Access/Egress Control Using TensorFlow Lite Based Edge Deployment on a Raspberry Pi
- 45.** Low Cost Extended Wireless Network Using Raspberry Pi 3B+
- 46.** Smart Obstacle Recognition System using Raspberry Pi
- 47.** Design of a vaccine storage and transportation system in remote areas based on Raspberry Pi
- 48.** Design of Brain Controlled Robotic Car using Raspberry Pi
- 49.** Development of Very Low Frequency Data Acquisition System using Raspberry Pi

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- 50.** Prediction of Traffic Density Using YOLO Object Detection and Implemented in Raspberry Pi 3b + and Intel NCS 2
- 51.** An Optophone Based on Raspberry Pi and Android Wireless Communication
- 52.** Detection and Classification of Diabetic Retinopathy using Raspberry PI
- 53.** Adaptive Virtual Learning System Using Raspberry-Pi
- 54.** Raspberry Pi as Reconfigurable Fiber-based Router and Its Performance Analysis
- 55.** A Home Security Camera System with Container-based Resource Allocation on Raspberry Pi
- 56.** Home Security System using Raspberry PI with IOT
- 57.** Low-cost Solar Tracking and Irradiance Measurement using Miniature 5-DoF Robotic Arm and Raspberry Pi
- 58.** Zebra Line Detection And Speed Control System Using Raspberry Pi
- 59.** Evaluating Cryptographic Performance of Raspberry Pi Clusters
- 60.** EfficientNet-Lite and Hybrid CNN-KNN Implementation for Facial Expression Recognition on Raspberry Pi
- 61.** Real-Time Family Member Recognition Using Raspberry Pi for Visually Impaired People
- 62.** Real Time Vehicle Detection, Tracking and Counting Using Raspberry-Pi
- 63.** Home Automation System with Raspberry Pi
- 64.** A Raspberry PI Real-Time Identification System on Face Recognition
- 65.** Inventive Fire Detection utilizing Raspberry Pi for New Age Home of Smart Cities
- 66.** Performance Investigation of Smart Integrated Circuit Breaker Using Raspberry Pi and Arduino Controller
- 67.** Autonomous chess-playing robotic arm using Raspberry PI
- 68.** A low-cost Raspberry PI-based vision system for upper-limb prosthetics
- 69.** Smart Home Heating Control using Raspberry Pi and Blynk IoT Platform
- 70.** Data Communication and Remote Monitoring using Raspberry Pi in a Solar-Wind-Biogas integrated Micro-grid system
- 71.** Sign in with Face Recognition and Gesture Recognition Based on Raspberry Pi
- 72.** Object Tracking with Raspberry Pi using Histogram of Oriented Gradients (HOG) and Support Vector Machine (SVM)
- 73.** Braille Book Reader using Raspberry Pi
- 74.** IoT based Smart Baby Cradle System using Raspberry Pi B+
- 75.** RaspMI: Raspberry Pi Assisted Embedded System for Monitoring and Recording of Seismic Ambient Noise

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- 76.** Using Block-Matching Methods to Help Navigating Visually Impaired People using Raspberry PI Platform
- 77.** Raspberry pi based Intelligent Reader for Visually Impaired Persons
- 78.** An Efficient Temperature Monitoring using Raspberry Pi
- 79.** Smart Robotic Personal Assistant Vehicle Using Raspberry Pi and Zero UI Technology
- 80.** Design of Raspberry Pi Web-based Energy Monitoring System for Residential Electricity Consumption
- 81.** A way of analyse of behavior monitoring for the elderly based on Raspberry PI
- 82.** Automatic Identification of Vehicle Plate Number using Raspberry Pi
- 83.** Implementing WLAN-IoT control system for brewing fermentation through Raspberry PI
- 84.** Smart Goal Keeper Prototype using Computer Vision and Raspberry Pi
- 85.** Smart Security Device for Women Based on IoT Using Raspberry Pi
- 86.** A Novel Non Invasive Myocardial Infarction Vigilant System by using Raspberry Pi
- 87.** Drowsiness/Sleep Detection and Alert System: Development of A Prototype Using Raspberry PI
- 88.** Deploying a Task-based Runtime System on Raspberry Pi Clusters
- 89.** Portable Assistive system for Visually Impaired using Raspberry Pi
- 90.** EMG & EIMG measurement for Arm & Hand motions using custom made instrumentation based on Raspberry PI
- 91.** Raspberry Pi Based Smart Wearable Device for Women Safety using GPS and GSM Technology
- 92.** Design and Implementation of Raspberry Pi based Cell phone
- 93.** Intrusion Detection and Prevention System for Production Supervision in Small Businesses Based on Raspberry Pi and Snort
- 94.** IoT based Air Pollution Monitoring device using Raspberry Pi and Cloud Computing
- 95.** Anomalous Crowd Behavior Detection Using Raspberri PI
- 96.** Vision-based Automatic Strawberry Shape and Size Estimation and Classification Using Raspberry Pi
- 97.** Web Controlled Raspberry Pi Robot Surveillance

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# IOT BASED IEEE 2021-2022 PROJECTS

## LIST

### A. Network- centric IoT

1. Estimate distance measurement using NodeMCU ESP8266 based on RSSI technique
2. The Use and Performance of MQTT and CoAP as Internet of Things Application Protocol using NodeMCU ESP8266
3. Implementation of Distributed Consensus Algorithms for Wireless Sensor Network Using NodeMCU ESP8266
4. Home Security And Automation Using NodeMCU-ESP8266
5. IoT as an Introduction to Computer Science and Engineering: A Case for NodeMCU in STEM-C Education
6. IOT based Electrical Device Surveillance and Control System
7. Implementation of air conditioning control system using REST protocol based on NodeMCU ESP8266
8. Export and Import of Renewable energy by Hybrid MicroGrid via IoT
9. Smart Energy Efficient Home Automation System Using IoT
10. Securing IoT Devices and Securely Connecting the Dots Using REST API and Middleware
11. Digital Outing System Using RFID And Raspberry Pi With MQTT Protocol
12. IOT based controlling of hybrid energy system using ESP8266
13. Advanced Patients Medication Monitoring System with Arduinio UNO and NODEMCU
14. IoT: Challenges and Issues in Indian Perspective
15. IoT-Aided Charity: An Excess Food Redistribution Framework
16. A NodeMCU based Fire Safety and Air Quality Monitoring Device
17. IoT Based Dipstick Type Engine Oil Level and Impurities Monitoring System: A Portable Online Spectrophotometer
18. Automated Enhanced Learning System using IOT
19. Battery Condition Prognostic System using IoT in Smart Microgrids
20. IoT Based Patient Monitoring System Using NodeMCU
21. Automated Toll Tax Collection System using Cloud Database
22. SAT-IoT: An Architectural Model for a High-Performance Fog/Edge/Cloud IoT Platform

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- 23.** Docker container based analytics at IoT edge Video analytics usecase
- 24.** An IoT based Smart Garbage Alert System
- 25.** Web Based Smart Meter for General Purpose Smart Home Systems with ESP8266
- 26.** IoT Application for On-line Monitoring of 1 kWp Photovoltaic System Based on NodeMCU ESP8266 and Android Application
- 27.** Automated Irrigation System-IoT Based Approach
- 28.** Mood Board: An IoT based Group Mood Evaluation Tool
- 29.** Semantic open IoT service platform technology
- 30.** Prototype of group heart rate monitoring with NODEMCU ESP8266
- 31.** Design of ESP8266 Smart Home Using MQTT and Node-RED
- 32.** Cloud Based Smart Dustbin System for Metro Station
- 33.** Automation in Agriculture and IoT
- 34.** IoT Based Energy Management for Smart Home
- 35.** IoT based Smart Shoe for the Blind
- 36.** Application of Internet of Things and Big Data towards a Smart City
- 37.** Learning IoT: Basic Experiments of Home Automation using ESP8266, Arduino and XBee
- 38.** The Effectiveness of Utilizing IoT-Based Smart Trash
- 39.** NodeMCU Choreography Automation by CoAP
- 40.** SSTL IO Based WLAN Channel Specific Energy Efficient RAM Design for Internet of Thing
- 41.** IoT based Energy Meter with Smart Monitoring of Home Appliances
- 42.** LoRa based renewable energy monitoring system with open IoT platform
- 43.** Streaming pulse data to the cloud with bluetooth LE or NODEMCU ESP8266
- 44.** A Sensor-based Garbage Gas Detection System
- 45.** IoT and cloud convergence: Opportunities and challenges
- 46.** The deployment of an IoT network infrastructure, as a localised regional service
- 47.** RSSI Comparison of ESP8266 Modules
- 48.** ECDH based security model for IoT using ESP8266
- 49.** Product Development of Integrated Mobile Stand- Vidyut
- 50.** Data centre temperature monitoring with ESP8266 based Wireless Sensor Network and cloud based dashboard with real time alert system
- 51.** A Community-Based IoT Service Platform to Locally Disseminate Socially-Valuable Data : Best effort local data sharing network with no conscious effort?
- 52.** Android Based Home Security Systems Using Internet of Things(IoT) and Firebase



- 53.** Soil moisture monitoring using IoT enabled arduino sensors with neural networks for improving soil management for farmers and predict seasonal rainfall for planning future harvest in North Karnataka â€“ India
- 54.** Smart Embedded Framework using Arduino and IoT for Real-Time Noise and Air Pollution Monitoring and Alert system
- 55.** A Smart Approach of LPG Monitoring and Detection System Using IoT
- 56.** IoT System Implementation for ATmega328 Microcontroller Based Home Door Control
- 57.** Environment Dynamic Monitoring and Remote Control of Greenhouse with ESP8266 NodeMCU
- 58.** NFV enabled IoT architecture for an operating room environment
- 59.** A step towards Home Automation using IOT
- 60.** Design and implementation of IoT based smart laboratory
- 61.** White-Box Testing Strategy for a Solar Tracking Device Using NodeMCU Lua ESP8266 Wi-Fi Network Development Board Module
- 62.** ESP8266 Microcontroller Application in Wireless Synchronization Tasks
- 63.** Design architecture and comparison of interactive smart button using HC-05 and ESP8266
- 64.** IoT Based Water Level Control System
- 65.** Smart Trash Monitoring System Design Using NodeMCU-based IoT
- 66.** Design and Development of IoT based Robotic Arm by using Arduino
- 67.** Arduino-based smart irrigation using water flow sensor, soil moisture sensor, temperature sensor and ESP8266 WiFi module
- 68.** ConnectOpen - automatic integration of IoT devices
- 69.** Development of a ZettaJS driver for the ESP8266 IoT hardware
- 70.** Communication Protocol Stack for Constrained IoT Systems
- 71.** Smart Kitchen with New Measurement, Web and Application Based with Affordable Design
- 72.** IoT based weather station
- 73.** A secure multi-hop routing for IoT communication
- 74.** A novel IoT access architecture for vehicle monitoring system
- 75.** Architecture of an IoT-based system for football supervision (IoT Football)
- 76.** Integration between wireless sensor and cloud
- 77.** Long-range & Self-powered IoT Devices for Agriculture & Aquaponics Based on Multi-hop Topology

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- 78.** A double regulated footer and header voltage technique for ultra-low power IoT SRAM
- 79.** Sharing user IoT devices in the cloud
- 80.** Energy Harvesting Meets IoT: Fuelling Adoption of Transient Computing in Embedded Systems
- 81.** IoT BasedSmart Waste Management System: India prospective
- 82.** Comparison between Noninvasive Heart Rate Monitoring Systems using GSM Module and ESP8266 Wi-Fi Module
- 83.** Design and Implementation of a Wearable Sensor Network System for IoT- Connected Safety and Health Applications
- 84.** Wireless Speakers using WiFi and IoT
- 85.** Smart Garbage Monitoring System using Internet of Things(IoT)
- 86.** IoT routing architecture with autonomous systems of thingsInternet of Things (IoT) based Energy Tracking and Bill Estimation System
- 87.** SURE-H: A Secure IoT Enabled Smart Home System
- 88.** Data Security Approach in IoT Environment
- 89.** Identity/identifier-enabled networks (IDEAS) for Internet of Things (IoT)
- 90.** Implementation of the Hardware Module of IoT-based Infant Incubator Monitoring System

**B. Cloud-centric IoT**

- 1.** Mapping QoE with Resource Estimation in IoT
- 2.** A Similarity based Trust Model to Mitigate Badmouthing Attacks in Internet of Things (IoT)
- 3.** Arduino Based Iot Device for Septuagenarian Fall Detection
- 4.** Real Time Weather Prediction System Using IOT and Machine Learning
- 5.** Real Time Tracking and Alert System for Laptop through Implementation of GPS, GSM, Motion Sensor and Cloud Services for Antitheft Purposes
- 6.** Heart (Pulse Rate) Monitoring using Pulse Rate Sensor, Piezo Electric Sensor and NodeMCU
- 7.** Fiber Bragg Grating basedLandslide Early Warning System
- 8.** A framework for rapid integration of IoT Systems with industrial environments
- 9.** Energy efficient IoT-based smart home
- 10.**Early detection of mild cognitive impairment in elderly through IoT: Preliminary findings
- 11.**Smart Automated Home Application using IoT with Blynk App
- 12.**Water Level Monitoring and Management of Dams using IoT

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- 13.**Authentication of IoT Device and IoT Server Using Secure Vaults
- 14.**Monitoring Electrical Energy Consumption Through Impulse Detection Using LDR Sensors and Relay With NodeMCU ESP8266
- 15.**Health Monitoring and Predicting System using Internet of Things & Machine Learning
- 16.**Transfer protocols of tiny data blocks in IoT and their performance evaluation
- 17.**Automating Legal Compliance Documentation for IoT Devices on the Network
- 18.**Experimental Performance Comparison of Emerging Low Power Wide Area Networking (LPWAN) Technologies for IoT
- 19.**An IoT Controlled Octahedron Frequency Reconfigurable Multiband Antenna for Microwave Sensing Applications
- 20.**IoT Backyard: Smart Watering Control System
- 21.**Smart work-assisting gear
- 22.**IoT Based Intelligent System For Vehicle Accident Prevention And Detection At Real Time
- 23.**IoT Aided Smart Light Sensing Automation using Passive Infrared Sensors
- 24.**A pragmatic approach to solving IoT interoperability and security problems in an eHealth context
- 25.**A Smart Switch Control System Using ESP8266 Wi-Fi Module Integrated with an Android Application
- 26.**Smart Home Automation-cum Agriculture System
- 27.**IoT Based Smart Watercraft System
- 28.**An IoT Solution for Secured and Remote Sound Level Monitoring
- 29.**Efficient Model For Automated Home Management System
- 30.**Blockchain: A game changer for securing IoT data
- 31.**IoT developed Wi-Fi Controlled Rover With Robotic Arm Using NodeMCU
- 32.**Constructing National Geospatial Big Data Platform: Current Status and Future Direction
- 33.**Overview of ESP8266 Wi-Fi module based Smart Irrigation System using IOT
- 34.**IoT-Enabled Group Activity Recognition Services Using a Modeling Language Approach
- 35.**Environmental monitoring as an IoT application in building smart campus of Universitas Udayana
- 36.**Economic impact of IoT cyber risk - Analysing past and present to predict the future developments in IoT risk analysis and IoT cyber insurance

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**37.**Research of Communication Between IoT Cloud Structure, Android Application and IoT Device Using TCP Sockets

**38.**A Novel Cognitive IoT Gateway Framework: Towards a Holistic Approach to IoT Interoperability

**39.**Hommons: Hydroponic management and monitoring system for an IOT based NFT farm using web technology

**40.**An Approach for Securing MQTT Protocol in ESP8266 WiFi Module

**41.**Lightweight gait based authentication technique for IoT using subconscious level activities

**42.**ArduTalk: An Arduino Network Application Development Platform Based on IoTtalk

**43.**An Experimental Comparison of Arduino IDE Compatible Platforms for Digital Control and Data Acquisition Applications

**44.**Rice Controller Using Half Bridge Load Cell and NodeMCU ESP8266 In Rice Dispenser

**45.**IOT based greenhouse environment monitoring and controlling system using Arduino platform

**46.**Animal monitoring based on IoT technologies

**47.**Cloud based IoT for smart garden watering system using Arduino Uno

**48.**Modeling and Research of Automatic Sun Tracking System on the bases of IoT and Arduino UNO

**49.**Implementation of an Arduino Remote Laboratory with Raspberry Pi

**50.**Arduino mega and IOT based intelligent energy meter (IEM) to increase efficiency and accuracy in current billing methodology

**51.**FIT IoT-LAB: A large scale open experimental IoT testbed

**52.**ARMOUR: Large-scale experiments for IoT security & trust

**53.**IoT-MAP: IoT mashup application platform for the flexible IoT ecosystem

**54.**A complete Internet of Things (IoT) platform for Structural Health Monitoring (SHM)

**55.**IoT based Health Monitoring System for Critical Patients and Communication through Think Speak Cloud Platform

**56.**IoT-Flock: An Open-source Framework for IoT Traffic Generation

**57.**Smart Gardening Automation using IoT With BLYNK App

**58.**IOT Based Smart Garbage Monitoring System Using ZigBee

**59.**Implementation of WiFi-based single phase smart meter for Internet of Things (IoT)

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- 60.**Head in a Cloud: An approach for Arduino YUN virtualization
- 61.**Intelligent Shopping Cart Using Bolt Esp8266 Based on Internet of Things
- 62.**A Low Cost, Open-source IoT based 2-axis Active Solar Tracker for Smart Communities
- 63.**Abstracting IoT devices using virtual machine for wireless sensor nodes
- 64.**The management control system for plant factory that uses the IoT technology in combination with Augmented Reality technology
- 65.**A New IoT Application for Dynamic WiFi based Wireless Sensor Network
- 66.**Identification and Visualization of Hazardous Gases Using IoT
- 67.**Low Cost Energy Efficient Smart Security System with Information Stamping for IoT Networks
- 68.**Automatic Vehicle Counting for IoT based Smart Traffic Management System for Indian urban Settings
- 69.**OAuth 2.0 meets Blockchain for Authorization in Constrained IoT Environments
- 70.**Development of an Energy Meter based on IoT
- 71.**Peer to peer signal strength characteristic between IoT devices for distance estimation
- 72.**Indoor positioning: A key enabling technology for IoT applications
- 73.**Design and Analysis of IoT based Air Quality Monitoring System
- 74.**IoT-based data logger for weather monitoring using arduino-based wireless sensor networks with remote graphical application and alerts
- 75.**Proceedings 2019 4th International Conference on Internet of Things: Smart Innovation and Usages
- 76.**UAV and IoT Integration: A Flying Gateway
- 77.**Arduino based Automated Viscometer for Oil Health Monitoring
- 78.**5G Internet of Things (IOT) Near and Far-Fields and Regulatory Compliance Intricacies
- 79.**Encounters in handling ICT especially Telemedicine centers in isolated tribal hilly areas of Uttarakhand
- 80.**Designing and Analysis of Microstrip Patch Antenna For UWB Applications
- 81.**Hardware Co-Simulation of Adaptive Noise Cancellation System using LMS and Leaky LMS Algorithms
- 82.**Filtering spam messages and mails using fuzzy C means algorithm
- 83.**Identifying Traffic Congestion Pattern using K-means Clustering Technique
- 84.**A New Multi-Focus Image Fusion Techniquefor an Efficient Surveillance

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- 85.**Multi-feature Based Automated Flower Harvesting Techniques in Deep Convolutional Neural Networking
- 86.**Virtual Instrument for Power Quality Measurement
- 87.**QB Sort:An Efficient computational Algorithm for advance networks
- 88.**Simulation and Analysis of Single Layer Silicon 2D P-i-N Solar Cell Using Comsol
- 89.**Gesture Recognition System
- 90.**Analysis of Slotsin Patch Antenna for wide Band
- 91.**Advancement in Quality of Services in Wireless Sensor Networks
- 92.**Implementation of AES Employing Systolic Array and Pipelining Approach
- 93.**Improvement in COCOMO Modal using Optimization algorithms to reduce MMRE Values for Effort Estimation
- 94.**Old Handwritten Music Symbol Recognition using the Combination of Foreground and Background Projection Profiles
- 95.**Analysis of MANET Payload Delivery Behaviour with Parallel Routingthrough MIMO

**C. Data-centric IoT**

- 1.** Realization of Printed Rotated Slot Antenna With Tuning Stubs Fed by Microstrip Feedline for Bandwidth Enhancement
- 2.** A Fuzzy WordNet graph based approach to find key terms for students short answer evaluation
- 3.** Entropy based Biclustering Model
- 4.** Processor Specific Green Counter Based on HSTL IO Standards Design on 90nm FPGA
- 5.** An Agent Based Virtual Machine Migration Process for Cloud Environment
- 6.** Performance Evaluation of SDN based Virtualization for Data Center Networks
- 7.** Enhancing bank security system using Face Recognition, Iris Scanner and Palm Vein Technology
- 8.** A 50 V Multi-Gate RF LMOS on InGaAs
- 9.** Encryption Algorithm Based on Neural Network
- 10.** An HMM Approach with a Quantum Receiver on 2-D Image Field to Identify Footsteps
- 11.** A Performance Evaluation Model for Mobile Applications
- 12.** Design of PID Controller for Paper Machine Headbox using Particle Swarm Optimisation (PSO)
- 13.** Comparative harmonic analysis of Diode clamped multi-level inverter
- 14.** Lumen Degradation of LEDs in Solar Lighting Systems



- 15.** Performance Analysis of Human Face Recognition Techniques
- 16.** Design and Development of a MEMS Stacked Thermoelectric Microwatt Generator
- 17.** Extraction and Analysis of Information in News Domain Using Semantic Web
- 18.** Energy efficient and scalable device-to-device discovery protocol with fast discovery
- 19.** Efficient Method for Isolated Marathi Digits Recognition using DWT and Soft Computing Techniques
- 20.** Modeling of Stock Consistency in the Approach Flow System of the Headbox
- 21.** Smart Luggage Carrier
- 22.** An Opinion Mining for Indian Premier League Using Machine Learning Techniques
- 23.** Privacy and Security issues in Big Data: Through Indian Prospective
- 24.** Performance Evaluation of Routing Protocols in Wireless Sensor Networks
- 25.** Energy conservation and Missing value prediction model in Wireless Sensor Network
- 26.** Baseline correction of ECG using regression estimation method
- 27.** Design of an Inset- Fed Slotted Triple Band Antenna
- 28.** Disaster Relief and Data Gathering Rover
- 29.** Comparison of Approaches of Distributed Satellite Image Edge Detection on Hadoop
- 30.** Recent Developments in Dual Gate Based Thin Film Transistors and Their Applications
- 31.** Digital Patient Eye
- 32.** Disease Manifestation Prediction from Weather Data Using Extreme Learning Machine
- 33.** Smart Lightning and Security System
- 34.** A Current Based Algorithm Using Harmonic Wavelet Transform and Rule Based Decision Tree for Transmission Line Protection
- 35.** An Enhanced MoBayesShrink Thresholding for Medical Image Denoising
- 36.** Performance Enhancement of Automatic Speech Recognition System using Euclidean Distance Comparison and Artificial Neural Network
- 37.** Software Fault Proneness Prediction Using Genetic Based Machine Learning Techniques
- 38.** A Method of Segmentation in 3D Medical Image for selection of Region of Interest (ROI).

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- 39.** Internet of Things' (IoT's) Impact on Decision Oriented Applications of Big Data Sentiment Analysis
- 40.** Organic Thin Film Transistor Based Graphene Drooped Sensors
- 41.** Smart learning based on augmented reality with android platform and its applicability
- 42.** Design and development of weather station for the 3.6 m Devasthal Optical Telescope
- 43.** Performance Analysis of 4:1 Multiplexer with DTMOS Technique
- 44.** A 100 V Lateral Trench Power MOSFET on InGaAs/InP
- 45.** Optimization of CSMA (Carrier Sense Multiple Access) over AODV, DSR & WRP Routing Protocol
- 46.** Building Semantic Information Retrieval System for Legal Cases From Heterogeneous Adapted and Diverse Data Sources Using Extended GAIA Methodology for Multi Agent System
- 47.** An experimental set up for utilizing convolutional neural network in automated weed detection
- 48.** A Circular UWB Antenna with Multi Band Notched Characteristics for UWB Applications
- 49.** A Comparative Analysis on E-Voting System Using Blockchain
- 50.** The Model for Determining Weight Coefficients of Maintainability Criteria in Agile Software Development Process
- 51.** An Enhanced zero-bias column buffer -direct-injection circuit using 180nm Cmos Technology
- 52.** A Progressively Clearing Framework Perceivability Location under Hazy Environment
- 53.** Comparative Harmonic Analysis of Diode Clamped Multi-Level Inverter
- 54.** Computer Vision based drowsiness detection for motorized vehicles with Web Push Notifications
- 55.** A New Wavelet-based Multifocus Image Fusion Technique using Method Noise-Median Filtering
- 56.** Radiation Hardened Memories for Satellites
- 57.** Smart Farming System using IoT for Efficient Crop Growth
- 58.** An IoT Instrumented Smart Agricultural Monitoring and Irrigation System
- 59.** Flow Sensor IoT Node for Wi-Fi Equipped Apartments and Gated Communities
- 60.** BlinDar: An invisible eye for the blind people making life easy for the blind with Internet of Things (IoT)



- 61.** IoT gateway - implementation proposal based on Arduino board
- 62.** Monitoring & Controlling of Substation Using IoT in Distribution Power Grid
- 63.** An Enhanced Mutual Authentication Scheme Based on ECDH for IoT Devices Using ESP8266
- 64.** Domestic Automation System Using Internet of Things and Arduino
- 65.** IoT power monitoring device using Wi-fi and Arduino
- 66.** Human Behavior Prediction Though Noninvasive and Privacy-Preserving Internet of Things (IoT) Assisted Monitoring
- 67.** Urban Underground Infrastructure Monitoring IoT: The Path Loss Analysis
- 68.** Evaluating LoRaWAN-based IoT devices for the tactical military environment
- 69.** Design and implementation of a long-range low-power wake-up radio for IoT devices
- 70.** Development of Power Factor Meter using Arduino
- 71.** R<sup>3</sup>HMS, An IoT Based Approach for Patient Health Monitoring
- 72.** Characterizing the impact of topology on IoT stream processing
- 73.** An Experiment with Arduino Uno and Tft Nexion for Internet of Things
- 74.** IoT Enabled Drip Irrigation System with Weather Forecasting
- 75.** IoT based Demand Side Management using Arduino and MATLAB
- 76.** Interoperability for Disaster Relief Operations in Smart City Environments
- 77.** Recommendations for securing Internet of Things devices using commodity hardware
- 78.** Development of an IoT-based Real-Time Air Quality Monitoring Device
- 79.** Flexible on-body coils for inductive power transfer to IoT garments and wearables
- 80.** Design and Implementation of SENSEP ACK: An IoT Based Mushroom Cultivation Monitoring System
- 81.** WE-Safe: A wearable IoT sensor node for safety applications via LoRa
- 82.** LoRa-based Mesh Network for IoT Applications
- 83.** Fab-IoT-Lab: Technological Expertise, Guidance and Prototyping Skills in a Single Place
- 84.** IoT Based Smart Multi Application Surveillance Robot
- 85.** Distribution Transformer Condition Monitoring based on Edge Intelligence for Industrial IoT
- 86.** IoT Based HOME AUTOMATION Using Node-RED
- 87.** Short paper: Overcoming IoT fragmentation through standard gateway architecture



- 88.** Monitoring dependability of city-scale IoT using D-case
- 89.** Smart Irrigation System Based Thingspeak and Arduino
- 90.** Designing a Smart Bracelet based on Arduino for Deaf Parents to Interact with their Children
- 91.** Development of a cost-effective electricity theft detection and prevention system based on IoT technology
- 92.** A framework for inter-thing relationships for programming the social IoT
- 93.** Characteristic Analysis of Received Signal Strength Indicator from ESP8266 WiFi Transceiver Module
- 94.** Automatic car parking system with visual indicator along with IoT
- 95.** Low Cost Heart Rate Portable Device for Risk Patients with IoT and Warning System
- 96.** Laboratory Automation System Using IOT Devices
- 97.** Monitoring of Carbon Monoxide and Sulfur Dioxide Using Electrochemical Gas Sensors Based on IoT
- 98.** Smart Crop Cultivation Monitoring System by Using IoT
- 99.** Federated edge-assisted mobile clouds for service provisioning in heterogeneous IoT environments
- 100.** Blood Pressure Measurement using in Wrist PPG and ECG
- 101.** Educating the Educators for Introducing Internet of Things to Primary and Secondary Schools™ Curriculums
- 102.** Security Analysis and Prevention of Attacks on IoT Devices
- 103.** Securing Self-organizing IoT Ecosystem: A Distributed Ledger Technology Approach
- 104.** Proving IoT Devices Firmware Integrity With Bijective MAC Time Stamped
- 105.** IoT-Sphere: A Framework to Secure IoT Devices from Becoming Attack Target and Attack Source
- 106.** Changing the programming paradigm for the embedded in the IoT domain
- 107.** Towards an integrated privacy protection framework for IoT: Contextualising regulatory requirements with industry best practices
- 108.** IoT Device Auto-Tagging Using Transformers
- 109.** An IoT smart home architecture for long-term care of people with special needs
- 110.** High precision UWB-IR indoor positioning system for IoT applications
- 111.** Marine IoT: non-invasive wearable multisensory platform for oceanic environment monitoring
- 112.** IoT based smart school bus monitoring and notification system

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- 113.** LitUp-A Wireless Lighting System using IOT
- 114.** Development of an IoT device for monitoring electrical energy consumption
- 115.** Arduino based door unlocking system with real time control
- 116.** Design and Realization of Node MCU Module Based on NB-IoT for General IoT Purpose
- 117.** IoT solutions for Sustainable Cities: An Online Adaptation for the Driver Intent Inference Algorithm
- 118.** Leveraging proximity services for relay device discovery in user-provided IoT networks
- 119.** Air Quality Sensing and Reporting System Using IoT
- 120.** A prosthetic hand control interface using ESP8266 Wi-Fi module and Android application
- 121.** Performance Evaluation of ESP8266 for Wireless Nurse Call System
- 122.** Tactical Rescue Analysis System using IoT
- 123.** An arduino based system for calculating the average life time of a person via indoor oxygen content
- 124.** Modeling process-aware Internet of Things services over an ARDUINO community computing environment
- 125.** Cellular IoT Traffic Characterization and Evolution
- 126.** Arduino based Sensor Equipped Fire Surveillance Drone
- 127.** Internet of Things (IoT) Smart Rubber Scale (SRS) System Using Arduino Platform
- 128.** An Uplink Transmission Scheme for TSN Service in 5G Industrial IoT
- 129.** Low Cost CO Detector Integrated with IoT
- 130.** Development of A Current Measuring Instrument for PEA Distribution Transformer using IoT Based
- 131.** IoT and I2C Protocol Based M-Health Medication Assistive System for Elderly People
- 132.** S-MOM: Smart Mom on the Move
- 133.** IOT Based Farming website
- 134.** Design and Implementation of a smart chair system for IoT
- 135.** Effective Industry Ready IoT Applied Courseware - Teaching IoT Design AND Validation
- 136.** An Overview: Security Issue in IoT Network
- 137.** Enabling IoT automation using local clouds
- 138.** Querying IoT services: A smart carpark recommender use case



**139.** An IoT Approach for Wireless Sensor Networks Applied to e-Health Environmental Monitoring

**140.** A novel clock synchronization architecture for IoT access system

#### **D. IoT in perception layers**

**1.** Design and Fabrication of IoT enabled Temperature Sensor Calibration Experimental Setup for Metrology Lab

**2.** IoT and Machine Learning Based Smart Garbage Management and Segregation Approach for Bangladesh

**3.** EC-IoT: An easy configuration framework for constrained IoT devices

**4.** Design and Implement of a Weather Monitoring Station using CoAP on NB-IoT Network

**5.** IOT Based Fault Detection of Underground Cables through Node MCU Module

**6.** IoT Based Food Wastage Management System

**7.** Model-driven Development for ESP-based IoT Systems

**8.** System Of Restriction Access With The Help Of NodeMCU And RFID Module

**9.** Quality of Service (QoS) in Internet of Things

**10.** Scalable and Configurable End-to-End Collection and Analysis of IoT Security Data : Towards End-to-End Security in IoT Systems

**11.** Quantum cryptography for IoT: APerspective

**12.** Extending Over-the-Air Libraries to Secure ESP8266 Updates

**13.** Intelligent operation monitoring IoT tag for factory legacy device

**14.** Multiple UAVs-based Surveillance and Reconnaissance System Utilizing IoT Platform

**15.** A smartphone connected software updating framework for IoT devices

**16.** Portable 3-D Printed Plastic Optical Fibre Motion Sensor for Monitoring of Breathing Pattern and Respiratory Rate.

**17.** IoT-Based Shutter Movement Simulation for Smart Greenhouse Using Fuzzy-Logic Control

**18.** Automated IoT-based water quality measurement and analysis tool

**19.** Towards Sustainable IoT Ecosystem

**20.** Brain Computer Interface based Arduino Home Automation System for Physically Challenged

**21.** Design of Hardware Module of IoT-based Infant Incubator Monitoring System

**22.** Demo abstract: A multithreaded arduino system for embedded computing

**23.** Secure Authentication Scheme for Internet of Things in Cloud

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- 24.**Real-time Environment Monitoring System using ESP8266 and ThingSpeak on Internet of Things Platform
- 25.**Open Source IoT-Based SCADA System for Remote Oil Facilities Using Node-RED and Arduino Microcontrollers
- 26.**MQTT based home automation system using ESP8266
- 27.**Use of modern communication technologies IoT for Natural resource conservation -Water
- 28.**Design of Wireless Electromyography (EMG) Monitoring System for Muscle Activity Detection on Parkinson Disease
- 29.**MQTT Based Air Quality Monitoring System using Node MCU and Node-RED
- 30.**Low-cost IoT+ML design for smart farming with multiple applications
- 31.**Multiple motion control system of robotic car based on IoT to produce cloud service
- 32.**IoT interoperability: A hub-based approach
- 33.**Key Technologies and challenges in IoT Edge Computing
- 34.**On the Bulk Ingestion of IoT Devices from Heterogeneous IoT Brokers
- 35.**Mobile based home automation using Internet of Things(IoT)
- 36.**Analysis of Cryptographic Algorithms on IoT Hardware platforms
- 37.**Reducing Carbon Footprint for Sustainable development of Smart Cities using IoT
- 38.**Low Cost IoT Based Emission Monitoring System for Thermal Power Plants
- 39.**Electric Energy Meter System Integrated with Machine Learning and Conducted by Artificial Intelligence of Things â€“ AioT
- 40.**Integration of Human Actors in IoT and CPS Landscape
- 41.**WSN/Wi-Fi Microchip-Based Agriculture Parameter Monitoring using IoT
- 42.**Incorporating OMA Lightweight M2M protocol in IoT/M2M standard architecture
- 43.**Genoma: Distributed Provenance as a Service for IoT-based Systems
- 44.**IOT Based Greenhouse Monitoring And Controlling System
- 45.**Development of an Economical SCADA System for Solar Water Pumping in Iran
- 46.**Unmanned Ground Vehicle Control using IoT
- 47.**Horizontal Requirement Engineering in Integration of Multiple IoT Use Cases of City Platform as a Service
- 48.**An overview on delegated authorization for CoAP: Authentication and authorization for Constrained Environments (ACE)
- 49.**Improving fast velocity and large volume data processing in IoT/M2M platforms
- 50.**An IoT Based Inventory System for High Value Laboratory Equipment
- 51.**Implementation of Iot Based Smart Cooking Environment

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- 52.E MONITOR - EB-Charge Monitoring System Using IoT**
- 53.Development of an automatic shutdown system for lighting and air conditioning by using Esp8266 to meet energy efficiency requirements in buildings**
- 54.Drowsiness detection system based on eye-closure using a low-cost EMG and ESP8266**
- 55.Home automation system based on ESP8266**
- 56.ESP8266 based implementation of wireless sensor network with Linux based web-server**
- 57.AD-IoT: Anomaly Detection of IoT Cyberattacks in Smart City Using Machine Learning**
- 58.IoT based Air Pollution Monitoring device using Raspberry Pi and Cloud Computing**
- 59.Virtual IoT Systems: Boosting IoT Innovation by Decoupling Things Providers and Applications Developers**
- 60.Spectral Sensing Method in the Radio Cognitive Context for IoT Applications**
- 61.Computation offloading and resource allocation for low-power IoT edge devices**
- 62.Extending scalability of IoT/M2M platforms with Fog computing**
- 63.Comparison Between MQTT and WebSocket Protocols for IoT Applications Using ESP8266**
- 64.NIMBLE collaborative platform: Microservice architectural approach to federated IoT**
- 65.DTMSim-IoT: A Distributed Trust Management Simulator for IoT Networks**
- 66.IV (Intravenous) Tube Flow Control Device with IOT**
- 67.Short paper: Object collaboration model to create joint knowledge in WoO environment**
- 68.Short paper: Wireless sensor network management for sustainable Internet of Things**
- 69.Intelligent Crop Monitoring and Protection System in Agricultural fields Using IoT**
- 70.IOT based Smart Traffic Light Control System**
- 71.IoT Based Power Monitoring System for Diesel Generator**
- 72.Design and Implementation of IoT-Based Automation System for Smart Home**
- 73.Smart Sericulture System Based On IoT and Image Processing Technique**
- 74.IoT (Internet of Things) Based Efficiency Monitoring System for Bio-Gas Plants**
- 75.Soil Nutrients Monitoring For Greenhouse Yield Enhancement Using Ph Value with Iot and Wireless Sensor Network**
- 76.IoT Accelerated Wi-Fi Bot controlled via Node MCU**
- 77.NFT-I technique using IoT to improve hydroponic cultivation of lettuce**

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- 78.**The Implementation of IoT Based Smart Refrigerator System
- 79.**Sample calculation of Link Power Budget and Effective SNR in NB-IoT
- 80.**Toward Location-Enabled IoT (LE-IoT): IoT Positioning Techniques, Error Sources, and Error Mitigation
- 81.**A Global IoT Device Discovery and Integration Vision
- 82.**Wireless Power Transmission for the Internet of Things (IoT)
- 83.**An analysis of energy consumption under various memory mappings for FRAM-based IoT devices
- 84.**IoT Based Handy Fuel Flow Measurement
- 85.**Automation Of Energy Meter And Building A Network Using Iot
- 86.**Brightics-IoT: Key Attractive Features of Enterprise Targeted IoT Platform
- 87.**IoT Security Solution to Avoid Theft
- 88.**Distributed Rule Anomaly Detection in SDN-based IoT
- 89.**Lightweight ontology in IoT architecture

**E. IoT in transport layers**

- 1.** Knowledge of Things: A novel approach to share self-taught knowledge between IoT devices
- 2.** Trust list: Internet-wide and distributed IoT traffic management using blockchain and SDN
- 3.** Internet of Things (IoT) for building smart home system
- 4.** Development and Implementation of an IoT Platform
- 5.** ATHENA: Distributed IoT Systems Providing Salient Features for Safety of Firefighters in Infra-Less Fire Environments
- 6.** IoT BASED SMART SIGNAL
- 7.** Radio-frequency Identification Based on Textile, Wearable, Chipless Tags for IoT Applications
- 8.** Water usage approximation of Automated Irrigation System using IOT and ANNâ€™s
- 9.** IoT Protocols for Low-power Massive IoT: A Communication Perspective
- 10.**A Design of IoT Device Configuration Translator for Intent-Based IoT-Cloud Services
- 11.**IoT lighting: Towards a connected building eco-system
- 12.**Voice controlled home automation system using Natural Language Processing (NLP) and Internet of Things (IoT)
- 13.**IoT based Traffic Sign Detection and Violation Control



- 14.**Cigarette Smoke Detectors for Non-Smoking Areas in the Building
- 15.**Accelerating Industrial IoT Application Deployment through Reusable AI Components
- 16.**Energy Monitoring Consumption at IoT-Edge
- 17.**Reliable Resource Management for IoT based Logistic Services
- 18.**Hardware Security in IoT era: the Role of Measurements and Instrumentation
- 19.**Energy Efficient Home Automation Using IoT
- 20.**Interworking technique and architecture for connecting LAN IoT devices towards standardized IoT service layer platform
- 21.**Design of an occupancy simulation system in Smart homes based on IoT
- 22.**IoT-cloud authorization and delegation mechanisms for ubiquitous sensing and actuation
- 23.**Low Cost IoT Enabled Weather Station
- 24.**Energy Monitoring using IOT
- 25.**Google Maps API Implementation On IOT Platform For Tracking an Object Using GPS
- 26.**Authentication and Authorization for IoT Devices in Disadvantaged Environments
- 27.**A PUF-based paradigm for IoT security
- 28.**Next Generation Lightweight Cryptography for Smart IoT Devices: : Implementation, Challenges and Applications
- 29.**Powering the IoT through embedded machine learning and LoRa
- 30.**Leveraging BLE and LoRa in IoT network for wildlife monitoring system (WMS)
- 31.**Enabling mechanisms for Cloud-based network virtualization in IoT
- 32.**The IIoT/IoT device control model based on narrow-band IoT (NB-IoT)
- 33.**IHB: A scalable and efficient scheme to identify homologous binaries in IoT firmwares
- 34.**Internet-of-Things Based Controller of a Three-Phase Induction Motor Using a Variable-Frequency Driver
- 35.**IoT lighting address scheme and profile API design for interoperability
- 36.**Learning IoT skills in the context of student projects
- 37.**A Social-Aware Approach for Federated IoT-Mobile Cloud using Matching Theory
- 38.**Automated Attendance Monitoring System Using IoT
- 39.**Electricity Monitoring and Controlling IoT Smart System
- 40.**Internet of Things (IoT) Based Fire Alert Monitoring System for Car Parking
- 41.**Privacy and security of consumer IoT devices for the pervasive monitoring of vulnerable people

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- 42.**An IoT based home automation using android application
- 43.**An IoT framework for intelligent vehicle monitoring system
- 44.**IoT in Vehicle Presence Detection of Smart Parking System
- 45.**Smart Water Management in Agricultural Land Using IoT
- 46.**Proof-of-Authentication      Consensus      Algorithm:      Blockchain-based      IoT Implementation
- 47.**An IoT-owned Service for Global IoT Device Discovery, Integration and (Re)use
- 48.**IoT energy management platform for microgrid
- 49.**Prov-IoT: A Security-Aware IoT Provenance Model
- 50.**Waste Monitoring System based on Internet-of-Thing (IoT)
- 51.**An Application of IoT for Conduct of Laboratory Experiment from Home
- 52.**IISR: A Secure Router for IoT Networks
- 53.**Developing complex services in an IoT ecosystem
- 54.**IoT fault management platform with device virtualization
- 55.**Tunneling Field Effect Transistors for Energy Efficient Logic, Sensor Interface and 3D IC Circuits for IoT Platforms
- 56.**Arduino-Based Wireless Motion Detecting System
- 57.**Mongoose RTOS based IoT Implementation of Surveillance System
- 58.**INTER-Health: An Interoperable IoT Solution for Active and Assisted Living Healthcare Services
- 59.**A novel architecture for IoT and smart community
- 60.**Using MTD and SDN-based Honeypots to Defend DDoS Attacks in IoT
- 61.**IoT based localization and tracking
- 62.**Drowsiness Detection and Monitoring the Sleeping Pattern using Brainwaves Technology and IoT
- 63.**Distance Monitoring System with ESP8266 for Industrial Automation Machines
- 64.**A Water Level Detection: IoT Platform Based on Wireless Sensor Network
- 65.**A SDN-based IoT Fine-grained Access Control Method
- 66.**IoT Antennas for Industry 4.0 “ Design and Manufacturing with an Example
- 67.**Embedded IoT Car Parking and Billing System
- 68.**Advancements towards Global IoT Device Discovery and Integration
- 69.**IoT-based Gas Leak Detection Device
- 70.**A low cost implementation of MQTT using ESP8266
- 71.**Value creation for IoT: Challenges and opportunities within the design and development process
- 72.**Iot Based Smart Shopping Mall

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- 73.**Wristband Vital: A wearable multi-sensor microsystem for real-time assistance via low-power Bluetooth link
- 74.**Development of an IoT Based Open Source SCADA System for PV System Monitoring
- 75.**A cloud-IoT model for reconfigurable radio sensing: The Radio.Sense platform
- 76.**Deployment of IoT applications on 5G edge
- 77.**Towards a Seamless Integration of IoT Devices with IoT Platforms Using a Low-Code Approach
- 78.**IoT Enabled Smart Bicycle Safety System

**F. IoT in processing layers**

- 1.** Plant and taste to reap with Internet of Things implementation of IoT in agriculture to make it a parallel industry
- 2.** A Voice Based One Step Solution for Bulk IoT Device Onboarding
- 3.** IOT Based Baby Cradle System with Real Time Data Tracking
- 4.** IoT Security Using Deception â€“ Measuring Improved Risk Posture
- 5.** Design and Analysis of IoT-Based Intelligent Robot for Real-Time Monitoring and Control
- 6.** SDNFV 5G-IoT: A Framework for the Next Generation 5G enabled IoT
- 7.** Indoor Localisation of IoT Devices by Dynamic Radio Environment Mapping
- 8.** A Low-Cost Remote Solar Energy Monitoring System for a Buoyed IoT Ocean Observation Platform
- 9.** Multiple Degree Authentication in Sensible Homes basedon IoT Device Vulnerability
- 10.**IoT framework with flexible management of multi-protocol nodes for redundancy applications
- 11.**High power UHF IOT for CW and pulsed applications
- 12.**IoT-MAAC: Multiple Attribute Access Control for IoT environments
- 13.**UAV Path Planning for Data Gathering of IoT Nodes: Ant Colony or Simulated Annealing Optimization
- 14.**An Android Application Controlled Video Surveillance Vehicle
- 15.**Black routing and node obscuring in IoT
- 16.**Location-aware IoT Search Framework based on Data Messaging and Aggregation Techniques
- 17.**IoT Remote Group Experiments in the Cyber Laboratory: A FPGA-based Remote Laboratory in the Hybrid Cloud

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- 18.**Using symmetric and asymmetric cryptography to secure communication between devices in IoT
- 19.**IOT based Remote Heartbeat Monitoring
- 20.**IoT development: Discovering, enabling and validation of real life IoT scenarios
- 21.**Standardising a moving target: The development and evolution of IoT security standards
- 22.**A Honeypot with Machine Learning based Detection Framework for defending IoT based Botnet DDoS Attacks
- 23.**Situation Aware Intrusion Detection System Design for Industrial IoT Gateways
- 24.**Brightics-IoT: Towards Effective Industrial IoT Platforms for Connected Smart Factories
- 25.**A Framework for Measuring IoT Data Quality Based on Freshness Metrics
- 26.**Smart Waste Collection Monitoring and Alert System via IoT
- 27.**Using IoTGolog to formalize IoT scenarios
- 28.**EMS: An Energy Management Scheme for Green IoT Environments
- 29.**Design and Implementation of IoT-Based Irrigation System
- 30.**IOT- Based Framework for E-Health Monitoring System
- 31.**Short paper: WoO approach general overview. Business context, innovative features and proposed framework
- 32.**Internet of Things-based Hydrocarbon Sensing for Real-time Environmental Monitoring
- 33.**A Secure Hybrid Cloud Enabled architecture for Internet of Things
- 34.**Efficient IoT based Weather Station
- 35.**Interworking of oneM2M-based IoT systems and legacy systems for consumer products
- 36.**Blockchain-based Optical Network Slice Rental Approach for IoT
- 37.**Budget-Hub: A low cost IoT hub selection and neighbor assignment scheme
- 38.**Design and Development of a IoT based Flexible and Wearable T-Shirt for Monitoring Breathing Rate
- 39.**IOT Based E-Tracking System for Waste Management
- 40.**Denial of Service Attack on IoT System
- 41.**Physical Unclonable Function Based Hardware Security for Resource Constraint IoT Devices
- 42.**Design of Indoor Environment Monitoring System Based on WiFi
- 43.**Smart Obstacle Recognition System using Raspberry Pi



- 44.**Low-Cost Digitization of Infusion Pump for Real-time Automated Flow Rate Monitoring and Warning
- 45.**A Multi-Functional Smart Socket Design
- 46.**A Transparent Double Folded Loop Antenna for IoT Applications
- 47.**Development of IoT Based Logistic Vehicle Maintenance System
- 48.**Botnet Attack Detection at the IoT Edge Based on Sparse Representation
- 49.**An Energy-Efficient and Reliable RPL for IoT
- 50.**Design of a DC-DC Boost Converter of Hybrid Energy Harvester for IoT Devices
- 51.**An IoT Based Efficient Waste Collection System with Smart Bins
- 52.**SHAKE: SHARED Acceleration Key Establishment for Resource-Constrained IoT Devices
- 53.**Industrial process monitoring using IoT
- 54.**Evaluating Critical Security Issues of the IoT World: Present and Future Challenges
- 55.**Dynamic security credentials PANA-based provisioning for IoT smart objects
- 56.**Optimizations for RFID-based IoT applications on the Cloud
- 57.**EDIMA: Early Detection of IoT Malware Network Activity Using Machine Learning Techniques
- 58.**IGaaS: An IoT Gateway-as-a-Service for On-demand Provisioning of IoT Gateways
- 59.**Creating & supporting IoT innovation ecosystems: Lessons from CityVerve
- 60.**mm-wave integrated wireless transceivers: Enabling technology for high bandwidth connections in IoT
- 61.**IoT based Smart Bin: A Swachh-Bharat Initiative
- 62.**Abstract Structure of Data Communication in IoT Application
- 63.**MQTT- CoAP Interconnector: IoT Interoperability Solution for Application Layer Protocols
- 64.**Statistical comparison of grain algorithm for IoT device security
- 65.**IoT Based Smart Waste Management Using Top K-Query Scheduling
- 66.**IoT based intrusion detection system using PIR sensor
- 67.**A Detailed Investigation on Embedded Computing Systems for IoT Applications
- 68.**Short paper: Semantic URI-based event-driven physical mashup
- 69.**Designing NB-IoT (Internet of Things) Network for Public IoT in Batam Island
- 70.**Opening the loops – Towards semantic, information-centric networking in the Internet of Things
- 71.**An IOT based sensing system for remote monitoring of PV panels

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- 72.**Moving target defense for Internet of Things using context aware code partitioning and code diversification
- 73.**Hypergraph-based overlay network model for the Internet of Things
- 74.**Secure layers based architecture for Internet of Things
- 75.**Unified IoT ontology to enable interoperability and federation of testbeds
- 76.**SigFox Communication Protocol: The New Era of IoT?
- 77.**An IoT Based Efficient Fire Supervision Monitoring and Alerting System
- 78.**IoT Based Smart Plant Irrigation System with Enhanced learning
- 79.**A Regional IoT System Using LPWA to Ensure the Safety of Local Residents and Tourists
- 80.**IoT based parking system using Google
- 81.**An IoT based weather information prototype using WeMos

#### **G. IoT in application layers**

- 1.** Development of IoT Heartbeat and Body Temperature Monitoring System for Community Health Volunteer
- 2.** Towards interoperable, cognitive and autonomic IoT systems: An agent-based approach
- 3.** A scalable distributed architecture towards unifying IoT applications
- 4.** Internet of Things (IoT) for Precision Agriculture Application
- 5.** A generic IoT architecture for smart cities
- 6.** IrLite Protocol For IoT Connectivity
- 7.** Impact of Hysteresis Control and Internal Thermal Mass on the Energy Efficiency of IoT-Controlled Domestic Refrigerators
- 8.** eSmart: An IoT based Intelligent Health Monitoring and Management System for Mankind
- 9.** Development of Smart Cooking Stove: Harvesting Energy from the Heat, Gas Leakage Detection and IoT Based Notification System
- 10.**IoT Based Health Monitoring System with LoRa Communication Technology
- 11.**Electromagnetic Energy Harvester for Battery-Free IoT Solutions
- 12.**Application of Machine Learning Techniques for the Calibration of Low-cost IoT Sensors in Environmental Monitoring Networks
- 13.**An IoT-Based Intelligent System for Real-Time Parking Monitoring and Automatic Billing
- 14.**Ichor - an IoT, Cloud, and Mobile Technologies Based Noninvasive Glucose Monitoring System

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**15.**A Logging Model for Enabling Digital Forensics in IoT, in an Inter-connected IoT, Cloud Eco-systems

**16.**Poster Abstract: IoT Platform for Engineering Education and Research (IoT PEER)- Applications in Secure and Smart Manufacturing

**17.**BIG IoT â€“ interconnecting IoT platforms from different domains

**18.**Protecting the Agriculture field by IoT Application

**19.**Designing IoT architecture(s): A European perspective

**20.**Towards a software-defined Network Operating System for the IoT

**21.**Simulators, Emulators, and Test-beds for Internet of Things: A Comparison

**22.**Power Consumption Analysis of NB-IoT Technology for Low-Power Aircraft Applications

**23.**User role in IoT-based systems

**24.**CoAPthon: Easy development of CoAP-based IoT applications with Python

**25.**AUTOCON-IoT: Automated and Scalable Online Conformance Testing for IoT Applications

**26.**The role of an IoT platform in the design of real-time recommender systems

**27.**An IoT system to estimate personal thermal comfort

**28.**Intelligent medicine box for medication management using IoT

**29.**Test Event Generation for a Fall-Detection IoT System

**30.**IoT Based Solar Smart LED Street Lighting System

**31.**Communication Energy and Protocol Considerations in IoT Deployments

**32.**Smart Intruder Notifying System Using NETPIE through Line Bot Based on Internet of Things Platform

**33.**Software and Hardware Security of IoT

**34.**Declarative Ontology Alignment Format for Semantic Translation

**35.**Cognition Enabled IoT Platform for Industrial IoT Safety, Security and Privacy â€“ The CHARIOT Project

**36.**Analysis of Internet of Things (IoT) Networks Using Extrinsic Information Transfer (EXIT) Chart

**37.**Temperature monitored IoT based smart incubator

**38.**Enhanced home automation system using Internet of Things

**39.**Internet of Things and crowd sourcing - a paradigm change for the research on the Internet of Things

**40.**IoT-NDN: An IoT Architecture via Named Data Networking (NDN)

**41.**Enhancing the Reliability of IoT Data Marketplaces through Security Validation of IoT Devices

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- 42.**IoT based Digitalization and Servitization of Construction Equipment in Concrete Industry
- 43.**Occipital Osteopathy and Radiation Detection for reducing insomnolence using IoT enabled pillow
- 44.**A Secure and Intuitive IoT Architecture for Container Farm
- 45.**Machine Learning Model for classification of IoT Network Traffic
- 46.**Development and Application Scenario of Municipal Utility Tunnel Facility Management Based on BIM, 3D Printer and IoT
- 47.**Reshaping IOT Through Blockchain
- 48.**A Flexible/Scalable IoT Server Node testbed, from Gateway to Edge Computing. A Smart Home Use Case
- 49.**Design and Implementation of an IoT based Automated Agricultural Monitoring and Control System
- 50.**An Efficient Greybox Fuzzing Scheme for Linux-based IoT Programs Through Binary Static Analysis
- 51.**Monitoring System In Industry Using IoT
- 52.**Smart Energy Meter Surveillance Using IoT
- 53.**BRAIN-IoT: Model-Based Framework for Dependable Sensing and Actuation in Intelligent Decentralized IoT Systems
- 54.**Smart health monitoring system of patient through IoT
- 55.**Development of ambient environmental monitoring system through wireless sensor network (WSN) using NodeMCU and “WSN monitoring”
- 56.**Energy information collecting agent for IoT big data system
- 57.**The development of quail eggs smart incubator for hatching system based on microcontroller and Internet of Things (IoT)
- 58.**IoT Device Type Identification Using Hybrid Deep Learning Approach for Increased IoT Security
- 59.**Optimization of the Process of Selecting of the IoT-Platform for the Specific Technical Solution IoT-Sphere
- 60.**IoT-RTP and IoT-RTCP: Adaptive Protocols for Multimedia Transmission over Internet of Things Environments
- 61.**Exploitation of IoTs for PMU in Tethered Drone
- 62.**Tracking hazardous aerial plumes using IoT-enabled drone swarms
- 63.**Deploying IoT devices to make buildings smart: Performance evaluation and deployment experience
- 64.**Adapting processor architectures for the periphery of the IoT nervous system

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- 65.**IoT-enabled multimodal sensing headwear system
- 66.**IoT security attacks using reverse engineering methods on WSN applications
- 67.**Indoor localization for IoT applications using fingerprinting
- 68.**Managing wireless sensor networks within IoT ecosystems
- 69.**IoT inter-security domain trust transfer and service dispatch solution
- 70.**FRASAD: A framework for model-driven IoT Application Development
- 71.**Game theoretic approach towards optimal multi-tasking and data-distribution in IoT
- 72.**IoT Based Remote Medical Diagnosis System Using NodeMCU
- 73.**Design and implementation of IoT planner: Device interaction service for IoT
- 74.**IoT Forensic A digital investigation framework for IoT systems
- 75.**Executing IoT Processes in BPMN 2.0: Current Support and Remaining Challenges
- 76.**A Minimalist Model of IoT based Sensor System for Sewage Treatment Plant Monitoring
- 77.**IoT Based Low Cost Smart Irrigation System
- 78.**Keep Rogue IoT Away: IoT Detector Based on Diversified TLS Negotiation
- 79.**IoT-HarPSecA: A Framework and Roadmap for Secure Design and Development of Devices and Applications in the IoT Space
- 80.**RFL-IoT: An IoT Reconfiguration Framework Applied Fuzzy Logic for Context Management
- 81.**IOT Based Smart Agriculture System
- 82.**Analysis of QoS for Conveying Authorisation Based on Internet of Things (IoT) in Wireless Sensor Networks (WSN)
- 83.**WoT-AD: A Descriptive Language for Group of Things in Massive IoT

## H. IoT in business layers

- 1.** A location-based smart shopping system with IoT technology
- 2.** An enhanced EAB algorithm to reduce RACH congestion due to IoT traffic in LTE-A networks
- 3.** A digital identity stack to improve privacy in the IoT
- 4.** DIY Smart House : Exploration and Practice of IoT MOOC Education
- 5.** A security-aware safety management framework for IoT-integrated bikes
- 6.** Trustworthy Computing in the Dynamic IoT Cloud
- 7.** Group-based incentive and penalizing schemes for proactive participatory data sensing in IoT networks
- 8.** Smart Sensors: Analysis of Different Types of IoT Sensors



- 9.** IoT Based Organic Waste Burner for Wood Vinegar Production
- 10.**Low-Cost Green Power Predictive Farming Using IOT and Cloud Computing
- 11.**Multichannel temperature monitor on IoT
- 12.**Design and Implementation of Cloud-Based Smart Parking Management System
- 13.**IOT Based Automatic LPG Gas Booking And Leakage Detection System
- 14.**Internet of Things: Applications, Challenges and Research Issues
- 15.**A Novel Framework for Smart Crop Monitoring Using Internet of Things (IOT)
- 16.**Multi-Tenant IoT Service Management towards an IoT App Economy
- 17.**IoT Fitness Device with Real Time Health Assessment and Cloud Storage
- 18.**Improving Irrigation by Using a Cloud Based IoT System
- 19.**An Internet of Things solution for real- time identification of electricity theft and power outrages caused by fault in distribution systems (converting existing electrical infrastructure of third world countries to Smart Grids)
- 20.**Security Testing Methodology of IoT
- 21.**An implementation of light-weight compression algorithm for wireless sensor network technology in structure health monitoring
- 22.**Design and implementation of a WiFi sensor device management system
- 23.**Invited Paper: Semantic IoT Data Description and Discovery in the IoT-Edge-Fog-Cloud Infrastructure
- 24.**A Modelling Approach for the Narrowband IoT (NB-IoT) Physical (PHY) Layer Performance
- 25.**A Fuzzy-Based System for Selection of IoT Devices in Opportunistic Networks Considering IoT Device Storage, Waiting Time and Node Centrality Parameters
- 26.**IOT Based Remote Patient Health Monitoring System
- 27.**IoT Based Low-cost Weather Station and Monitoring System for Precision Agriculture in India
- 28.**Securing the IoT world: Issues and perspectives
- 29.**CEFIoT: A fault-tolerant IoT architecture for edge and cloud
- 30.**SPOT: A smartphone-based platform to tackle heterogeneity in smart-home IoT systems
- 31.**Towards low-energy, low-cost and high-performance IoT-based operation of interconnected systems
- 32.**A low power IoT network for smart agriculture
- 33.**A Hybrid Framework for Securing Data Transmission in Internet of Things (IoTs) Environment using Blockchain Approach
- 34.**Context-aware stream processing for distributed IoT applications

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- 35.**An IoT framework for smart power management system
- 36.**IoT-Based Light Intensity Controller
- 37.**Towards Robust IoT Network Topology in Adversarial Environments
- 38.**IoT Based Real Time Health Monitoring System
- 39.**IoT Based Airport Parking System
- 40.**IOT based smart street light management system
- 41.**Green house based on IoT and AI for societal benefit
- 42.**Active Learning Explored in Open Elective Course: Internet of Things (IoT)
- 43.**Real-Time Cloud based Weather Monitoring System
- 44.**The design of IoT system for icehouse manufacturing
- 45.**Smart Walker based IoT Physical Rehabilitation System
- 46.**Design of an Affordable pH module for IoT Based pH Level Control in Hydroponics Applications
- 47.**Implementation of an energy monitoring and control device based on IoT
- 48.**IoT-Based Fire Alarm System
- 49.**Exploitation of social IoT for recommendation services
- 50.**An ISM-Band Automated Irrigation System for Agriculture IoT
- 51.**Low Cost IoT Sensor System for Real-time Remote Monitoring
- 52.**IoT Indoor Localization with AI Technique
- 53.**Provision of a Recommender Model for Blockchain-Based IoT with Deep Reinforcement Learning
- 54.**Development and Testing of IoT based Monitoring Interface for Solar Box Cooker
- 55.**Securing Low-Resource Edge Devices for IoT Systems
- 56.**Medicine Parameters Monitoring Using IoT
- 57.**Mobile edge computing with network resource slicing for Internet-of-Things
- 58.**Building Stakeholder Trust in Internet of Things (IoT) Data Services using Information Service Level Agreements (SLAs)
- 59.**The Integration of LwM2M and OPC UA: An Interoperability Approach for Industrial IoT
- 60.**A distributed in-network indexing mechanism for the Internet of Things
- 61.**Requirement-based prioritization system in multi-user IoT
- 62.**Low-power wireless advertising software library for distributed M2M and contextual IoT
- 63.**Framework-supported mechanism of testing algorithms for assessing memory and detecting disorientation from IoT sensors

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- 64.**Towards a Scaled IoT Pub/Sub Architecture for 5G Networks: the Case of Multiaccess Edge Computing
- 65.**OppNet: Enabling citizen-centric urban IoT data collection through opportunistic connectivity service
- 66.**Pull support for IoT applications using mobile access framework WebMaDa
- 67.**6LoWPAN Forwarding Techniques for IoT

**I. IOT based Analytics**

- 1.** Borewell water quality and motor monitoring based on IoT gateway
- 2.** A Natural User Interface and Blockchain-Based In-Home Smart Health Monitoring System
- 3.** Business Continuity Management Framework of Internet of Things (IoT)
- 4.** Smart Environmental Monitoring through Internet of Things (IoT) using RaspberryPi 3
- 5.** IoT based smart campus
- 6.** Designing IoT based Posture Monitoring System
- 7.** An edge computing architecture integrating virtual IoT devices
- 8.** Energy-efficient Internet of Things monitoring with low-capacity devices
- 9.** Emerging Access Technologies and Open Challenges in 5G IoT: From Physical Layer Perspective
- 10.**On the use of the millimeter wave and low terahertz bands for Internet of Things
- 11.**Virtual IoT HoneyNets to Mitigate Cyberattacks in SDN/NFV-Enabled IoT Networks
- 12.**An Efficient Counter-Based DDoS Attack Detection Framework Leveraging Software Defined IoT (SD-IoT)
- 13.**IoT Gateway Middleware for SDN Managed IoT
- 14.**Integration of IoT, Transport SDN, and Edge/Cloud Computing for Dynamic Distribution of IoT Analytics and Efficient Use of Network Resources
- 15.**Array of Semiconductor Nanowires Gas Sensor for IoT in Wastewater Management
- 16.**Proactive Measures to Mitigate Cyber Security Challenges in IoT based Smart Healthcare Networks
- 17.**Implement of agent with role-based hierarchy access control for secure grouping IoTs
- 18.**IoT Based Water Level Meter
- 19.**Gas Level Detection and Automatic Booking Using IoT
- 20.**A Holistic Approach For Patient Health Care Monitoring System Through IoT



- 21.**Smart IoT Water Sprinkle and Monitoring System for chili plant
- 22.**IoT based Smart Cold Storage System for Efficient Stock Management
- 23.**A unified architecture for integrating energy harvesting IoT devices with the Mobile Edge Cloud
- 24.**Predicting complex events for pro-active IoT applications
- 25.**Leveraging existing sensor networks as IoT devices for smart buildings
- 26.**Statistical analysis of CO<sub>2</sub> emission based on road grade, acceleration and vehicle specific power for public utility vehicles: An IoT application
- 27.**A low-cost LoRaWAN testbed for IoT: Implementation and measurements
- 28.**IoT solutions for 3-D visualization of Twitter data
- 29.**An IoT Concept for Region Based Human Detection Using PIR Sensors and FRED Cloud
- 30.**IoT based Agri Soil Maintenance Through Micro-Nutrients and Protection of Crops from Excess Water
- 31.**A 3-dimensional view model of IoT-empowered business model engineering towards borderless business reengineering
- 32.**Water Conservation Control by using IoT Smart Meter
- 33.**IoT based bio-metric seat reservation and transport management system for university bus
- 34.**Design and Implementation of IoT Based Smart Energy Meter
- 35.**Improving Electric Motor Performance by Handling Interference using IOT
- 36.**Design of an IoT Energy Monitoring System
- 37.**IoT Assisted Automatic Irrigation System using Wireless Sensor Nodes
- 38.**Performance Analysis of Periodic Cellular-IoT Communication with Immediate Release of Radio Resources
- 39.**ZIGBEE Based Time and Energy Efficient Smart Parking System Using IOT
- 40.**Water Quality Monitoring System Using IOT
- 41.**A Comprehensive Smart IoT Tracker for the Children, Elder, and Luggage With the Assistance of Mobile App
- 42.**An Intelligent System on Environment Quality Remote Monitoring and Cloud Data Logging Using Internet of Things (IoT)
- 43.**Smart health band using IoT
- 44.**An IOT based human healthcare system using Arduino uno board
- 45.**Optical based non invasive glucometer with IoT

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- 46.**An open virtual neighbourhood network to connect IoT infrastructures and smart objects â€“ Vicinity: IoT enables interoperability as a service
- 47.**Benchmarking IoT Context Management Platforms: High-level Queries Matter
- 48.**Developing a Monitoring System for Tripping Fault Detection via IoT
- 49.**A brief introduction to IoT gateway
- 50.**Design and Business Modeling of an IoT Based Cost-Effective Vehicular Monitoring System for Next Generation Smart Vehicle
- 51.**Smart-Config Wifi Technology Using ESP8266 for Low-Cost Wireless Sensor Networks
- 52.**IOT Based Smart Vehicle Parking System Using RFID
- 53.**Microservices Architecture for IoT Applications in the Ocean : Microservices Architecture based Framework for Reducing the Complexity and Increasing the Scalability of IoT Applications in the Ocean
- 54.**Dynamic flow steering for IoT monitoring data in SDN-coordinated IoT-Cloud services
- 55.**Boosted Probabilistic Neural Network for IoT Data Classification
- 56.**Towards a secure and resilient IoT architecture for smart home energy management
- 57.**Short paper: Time-dependent power load disaggregation with applications to daily activity monitoring
- 58.**ClouT : Cloud of things for empowering the citizen clout in smart cities
- 59.**A practical dynamic positioning and tracking on the vehicular ad-hoc network
- 60.**Software defined connected prosumer communities
- 61.**How shared IoT data infrastructure enables the future of transportation
- 62.**Robust 3D Indoor Positioning System Based on Radio Map Using Bayesian Network
- 63.**Design of a smart gateway solution based on the exploration of specific challenges in IoT
- 64.**IOT Based Pregnancy Women Health Monitoring System for Prenatal Care
- 65.**Applying Internet of Things (IoT) Technology to Automatic Fire-extinguishing System in Machine Rooms

**J. IOT based Integration**

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- 1.** IOT based Automated Quality Assessment for Fruits and Vegetables using Infrared
- 2.** Clutch Accelerator Training and Helping Machine: IOT Based driving teaching and assistance system
- 3.** Sensor Based Waste Water Monitoring for Agriculture Using IoT
- 4.** Healthcare Monitoring System Based on IoT
- 5.** IoT based Automatic Waste segregator
- 6.** Field monitoring using IoT in agriculture
- 7.** Affordable IoT device for renewable energy systems monitoring of the CIVISA's multiparameter remote stations
- 8.** IoT based of RFID Bus Tracking System to Support Green City Initiatives
- 9.** Charging Station for E-Vehicle using Solar with IOT
- 10.** Exploration and Research of Internet of Things Architecture Based on Fractal Theory
- 11.** Design, Implementation and Analysis of a Twitter-Based Social IoT Network
- 12.** TON\_IoT Telemetry Dataset: A New Generation Dataset of IoT and IIoT for Data-Driven Intrusion Detection Systems
- 13.** Security certification and labelling in Internet of Things
- 14.** A Plain Low Threshold IoT Platform for Enabling New IoT Products from SMEs
- 15.** Development of congestion level based dynamic traffic management system using IoT
- 16.** Situation Assessment to Secure IoT Applications
- 17.** An Intelligent Communication Warning Vulnerability Detection Algorithm Based on IoT Technology
- 18.** Wireless Sensor Networks for Effective Environmental Tracking System Using IoT and Sensors
- 19.** Low Power Contactless Voltage Sensor for IoT Applications
- 20.** IoT Threat Detection Advances, Challenges and Future Directions
- 21.** Design of fog computing based IoT application architecture
- 22.** IoT Gateways for Industrial and Medical Applications: Architecture and Performance Assessment
- 23.** IOT Based Precision Horticulture in North India
- 24.** Secure and trusted telemedicine in Internet of Things IoT
- 25.** Agri-IoT: A semantic framework for Internet of Things-enabled smart farming applications

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**26.**Uplink Narrowband IoT Data Rate Improvement: Dense Modulation Formats or Non-Orthogonal Signal Waveforms?

**27.**The Manufacturing Data and Machine Learning Platform: Enabling Real-time Monitoring and Control of Scientific Experiments via IoT

**28.**SAVI-IoT: A Self-Managing Containerized IoT Platform

**29.**Home automation using Internet of Thing

**30.**IOT Based No-parking Notifier System

**31.**Trafic Intersection Fuzzy Control and Supervision System based on IoT

**32.**Smart Plant Managing System using IoT

**33.**Secure routing in IoT with multi-objective simulated annealing

**34.**A Novel IoT Architecture based on 5G-IoT and Next Generation Technologies

**35.**Using Smart Edge IoT Devices for Safer, Rapid Response With Industry IoT Control Operations

**36.**Handheld combat support tools utilising IoT technologies and data fusion algorithms as reconnaissance and surveillance platforms

**37.**Ad-hoc changes in IoT-aware business processes

**38.**Design of Intelligent Control Nodes with Integration to an Energy Management System

**39.**Test-based risk assessment and security certification proposal for the Internet of Things

**40.**Smart Vehicle Protocol Monitoring System by the Internet of Things Platform

**41.**Nonce-based authenticated key establishment over OAuth 2.0 IoT proof-of-possession architecture

**42.**Protecting the Internet of Things with Security-by-Contract and Fog Computing

**43.**Observing data in IoT worlds: What and how to observe?

**44.**An MQTT-based Scalable Remote Control Framework with NodeMCU and Cloud platfrom

**45.**Swift-IoT: A Framework for Small Scale IoT System Development for Students

**46.**State diagram based IoT Ecosystem's IoT device conflict problem migration method

**47.**A proposal of IoT DEP as a platform for efficient IoT service deployment on Wide Area Networks

**48.**Emerging â€œcyber hygieneâ€ practices for the Internet of Things (IoT): Professional issues in consulting clients and educating users on IoT privacy and security

**49.**I am not a number: Towards participatory IoT monitoring in the workplace

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- 50.**Low cost smart parking system for smart cities
- 51.**Security and Privacy in IoT based E-Business and Retail
- 52.**Design and Development of IOT Testbed with DDoS Attack for Cyber Security Research
- 53.**Intelligent irrigation system – An IOT based approach
- 54.**Actuator quality in the Internet of Things
- 55.**Extending DataTweet IoT Architecture for Virtual IoT Devices
- 56.**Opportunistic Internet of Things (IoT): Demystifying the Effective Possibilities of Opportunisitc Networks Towards IoT
- 57.**A Dual-Mode NB-IoT and EC-GSM RF-SoC Achieving  $\geq 128$ -dBm Extended-Coverage and Supporting OTDOA and A-GPS Positioning
- 58.**Efficient IoT-enabled Landslide Monitoring
- 59.**Data Conformity Evaluation: A Novel Approach for IoT Security
- 60.**Improving Accuracy of the Shewhart-based Data-Reduction in IoT Nodes using Piggybacking
- 61.**Integration Strategy for Standalone Compliant Interactive Systems for Add-on IoT based Electronics
- 62.**Performance analysis of hybrid multiple radio IoT architecture for ubiquitous connectivity
- 63.**Integrity attestation in military IoT
- 64.**Polymer sensor embedded, IOT enabled t-shirt for long-term monitoring of sleep disordered breathing
- 65.**IoT platform for condition monitoring of industrial motors
- 66.**Improving Temperature Sensor Accuracy in the IoT Trainer Kit by Linear Regression Method
- 67.**Architecture, Issues and Challenges in Monitoring based on IoT for Smarter Environment
- 68.**Implementation of semantic system in the smart home lights device based on agent
- 69.**Protean Authentication Scheme – A Time-Bound Dynamic KeyGen Authentication Technique for IoT Edge Nodes in Outdoor Deployments
- 70.**Design and implementation of IoT framework for Home Automation and Monitoring
- 71.**InterOpT: A new testing platform based on oneM2M standards for IoT systems
- 72.**Demo Abstract: A Semantic Notication Approach for IoT-Based Sensory Data
- 73.**Prototype Design of IoT (Internet of Things)-based Load Monitoring System



- 74.**A unified semantic knowledge base for IoT
- 75.**On inferring how resources are shared in IoT ecosystems; a graph theoretic approach
- 76.**Decentralized IoT Data Authorization with Pebble Tracker
- 77.**Real time implementation of space vector pulse width modulation for three level neutral point clamped (NPC) inverter using Arduino DUE board
- 78.**Smart drip irrigation system using raspberry pi and arduino
- 79.**Arduino-based IDE for Embedded Multi-processor System-on-Chip
- 80.**Design and implementation of a cloud-based multi-LPWAN IoT data collection service
- 81.**Arduino - Your Trendy Guardian
- 82.**IoT Based Solar Panel Analysis using Thermal Imaging
- 83.**Low-cost IoT based weather monitoring system for smart community
- 84.**Issues and Implementation Strategies of the IoT (Internet of Things) Industry
- 85.**IOT based Automated Fish Feeder
- 86.**IoT Based Low Cost Smart Indoor Farming Management System Using an Assistant Robot and Mobile App

## K. IOT based Security

- 1.** From Innovative Niches to a Cooperative IoT Ecosystem Creating Business Value for Federated and Interoperable IoT Platforms
- 2.** Enabling On-Demand Decentralized IoT Collectability Marketplace using Blockchain and Crowdsensing
- 3.** EPSSR: Energy preserving system for smart rooms
- 4.** DynPolAC: Dynamic Policy-Based Access Control for IoT Systems
- 5.** IOT Based Car Parking
- 6.** Decentralized fault tolerance mechanism for intelligent IoT/M2M middleware
- 7.** Real-time intelligent monitoring system based on IoT
- 8.** IOT Based Weather Intelligence
- 9.** Live Monitoring System for Recognizing Varied Emotions of Autistic Children
- 10.**Challenges in the Design of an IoT Testbed
- 11.**START: Smart Stick based on TLC Algorithm in IoT Network for Visually Challenged Persons
- 12.**Mitigating Mirai Malware Spreading in IoT Environment
- 13.**Tacit computing and its application for open IoT era

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- 14.**Performance of IoT protocols under constrained network, a Use Case based approach
- 15.**Development of an easy payment system based on IoT gateway
- 16.**CorrAUC: A Malicious Bot-IoT Traffic Detection Method in IoT Network Using Machine-Learning Techniques
- 17.**LIoTS: League of IoT Sovereignties. A Scalable approach for a Transparent Privacy-safe Federation of Secured IoT Platforms
- 18.**Network Transparent Fog-based IoT Platform for Industrial IoT
- 19.**Air Quality Monitoring System Based Internet of Things (IoT) Using LPWAN LoRa
- 20.**Design of IoT Embedded Smart Energy Management System
- 21.**Wearable device to measure heart beat using IoT
- 22.**Development of IoT security component for interoperability
- 23.**Farm Automation based on IoT
- 24.**Smart bin for Clean Cities using IOT
- 25.**Cloud based Smart Pantry System using IoT
- 26.**IoT based Smart Security System using PIR and Microwave Sensors
- 27.**Design and Development of E-Sense: IoT based Environment Monitoring System
- 28.**Health monitoring and tracking system for soldiers using Internet of Things(IoT)
- 29.**A Smart Home Automation and Metering System using Internet of Things (IoT)
- 30.**On the Application of IOT (Internet of Things) for Securing Industrial Threats
- 31.**Xively based sensing and monitoring system for IoT
- 32.**An IoT Based Railway Security System for Automated Manning at Level Crossings
- 33.**IoT based Smart Village
- 34.**Automation of Traffic Lights through IoT
- 35.**Design and Development of IoT-based Robot
- 36.**A Smart BTS/Node B Network Monitoring and Control using IoT
- 37.**IOT for ITS: An IOT Based Dynamic Traffic Signal Control
- 38.**Development and Testing of Gateway LoRa for Cloudino IoT Open Source Platform
- 39.**Self-certifying ID based trustworthy networking system for IoT smart service domain
- 40.**Smart CCR IoT: Internet of Things Testbed
- 41.**Prototyping of Open Source NB-IoT Network
- 42.**A Lightweight and Secure IoT Remote Monitoring Mechanism Using DNS with Privacy Preservation
- 43.**IoT business models and extended technical requirements

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- 44.**Enabling ESP32-based IoT Applications in Building Automation Systems
- 45.**A scalable approach to monitoring air pollution using IoT
- 46.**Indoor positioning system simulation for a robot using radio frequency identification
- 47.**Decomposition-compensation approach to microcloud-based IoT infrastructure management
- 48.**Decentralized Data Flows in Algebraic Service Compositions for the Scalability of IoT Systems
- 49.**Development and Application of the Smart Helmet for Disaster and Safety
- 50.**Developing IoT applications in the Fog: A Distributed Dataflow approach
- 51.**Easing IoT application development through DataTweet framework
- 52.**Evaluating the Architectural Debt of IoT Projects
- 53.**Real-Virtual World Device Synchronization in a Cloud-Enabled Social Virtual Reality IoT Network
- 54.**IoT Smart Home Assistant for Physically Challenged and Elderly People
- 55.**Simplified Stream Discharge Estimation for Hydrological Application based on NB-IoT Deployment
- 56.**Consumer's Activity Prediction in Household Water Consumption Based-IoT (Internet of Things)
- 57.**Real-time PM Monitoring System based on oneM2M IoT Platform and LoRa Networks
- 58.**Toward Global IoT-Enabled Smart Cities Interworking Using Adaptive Semantic Adapter
- 59.**Emerging trends in IoT standards and legislation
- 60.**Access Features Analysis of Things in the Internet of Things
- 61.**Penetration Testing in IoT Network
- 62.**SEMIoTICS Architectural Framework: End-to-end Security, Connectivity and Interoperability for Industrial IoT
- 63.**Scalable IoT Solution using Cloud Services – An Automobile Industry Use Case
- 64.**Security Framework for IoT and Fog Computing Networks
- 65.**Leveraging Semisupervised Hierarchical Stacking Temporal Convolutional Network for Anomaly Detection in IoT Communication
- 66.**IoT-Assisted ECG Monitoring Framework With Secure Data Transmission for Health Care Applications

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**L. Infrastructure**

- 1.** An IoT-Based Smart Aquarium Monitoring System
- 2.** Design and Implementation of Smart Socket Based on NB-IoT
- 3.** A Pulse Oximetry IoT System Based on Powerline Technology
- 4.** ThumbUp : Dynamic updates of IoT device applications for smart personalized services
- 5.** Technology trends of access control in IoT and requirements analysis
- 6.** Network Slicing for Multi-tenant Edge Processing over Shared IoT Infrastructure
- 7.** Smart Warehouse Management Based on IoT Architecture
- 8.** Low cost IoT for laboratory environment
- 9.** Design of IOT Based Multifunctional Camouflage Military Robot
- 10.** IoT based monitoring and control of appliances for smart home
- 11.** Smart environment using IoT
- 12.** Automated IOT based system for home automation and prediction of electricity usage and comparative analysis of various electricity providers: SmartPlug
- 13.** Embedded Vehicle Speed Control and Over-Speed Violation Alert Using IoT
- 14.** Drinking Water Monitoring in Mosul City Using IoT
- 15.** Vehicle Speed Control and Over-Speed Violation Alert Using IoT and Hall Effect Sensor
- 16.** Design and implementation of smart garage- An IoT perspective
- 17.** Comparative Analysis of IoT protocols for a Marine IoT System
- 18.** Virtual IoT: An IoT Platform with MR Technologies Realizing Low-cost and Flexible Notification of Life-support Information
- 19.** Towards the self-powered Internet of Things (IoT) by energy harvesting: Trends and technologies for green IoT
- 20.** BF-IoT: Securing the IoT Networks via Fingerprinting-Based Device Authentication
- 21.** Challenges and solutions of interoperability on IoT: How far have we come in resolving the IoT interoperability issues
- 22.** Service Mediation Gateway for Heterogenous IoT Services Harmonization
- 23.** Remote Monitoring Real Time Air pollution - IoT (Cloud Based)
- 24.** IoT based Real Time Health Monitoring
- 25.** Smart Landfill Monitoring System using IOT – An Approach to Safeguard Public
- 26.** Design of smart shoe box based on IOT
- 27.** Novel vehicle booking system using IOT



- 28.**Intelligent Control and Monitoring of Electrical Outlets and Appliances using IoT
- 29.**IoT Based Safety and Health Monitoring for Construction Workers
- 30.**Finding Location of Transformer that overload using IoT Method
- 31.**IoT Enabled Real-Time Energy Monitoring for Photovoltaic Systems
- 32.**Gas Leakage Detection Based on IOT
- 33.**A Novel Approach for Accident Prevention Using IOT
- 34.**Re-using old cellphones for IoT applications
- 35.**An IOT Based ATM Surveillance System
- 36.**Power Efficiency and Automation Based on IoT
- 37.**IoT approach to save life using GPS for the traveller during accident
- 38.**IoT Based Power Management System (Academic Year 2019-20)
- 39.**IOT Based Soil Testing Instrument For Agriculture Purpose
- 40.**Provision of IoT Services for CO-Located 4G/5G Networks Utilisation with Dynamic Frequency Sharing
- 41.**Implementation and analysis of an updating data strategy on IoT-Waspmove Gases Testbed with 2.4 GHz XBee for Air Quality Application
- 42.**Poster Abstract: Modbus and IoT Platform Interworking for Smart Energy Management
- 43.**An Architecture for Managing IoT Device Object in Information Gateway
- 44.**Low cost ambient monitoring using ESP8266
- 45.**Satellite Based IoT for Mission Critical Applications
- 46.**Making IoT security policies relevant, inclusive and practical for people: A multi-dimensional method
- 47.**DDoS Attack Detection Based on Simple ANN with SMOTE for IoT Environment
- 48.**Leveraging civilian IoT infrastructures to support warfighting activities in urban environments
- 49.**Low Throughput Networks for the IoT: Lessons learned from industrial implementations
- 50.**QoS-by-Design in reconfigurable IoT ecosystems
- 51.**Interoperability of device identification in heterogeneous IoT platforms
- 52.**M2M and eMTC communications via NB-IoT, Morocco first testbed experimental results and rf deployment scenario: New approach to improve main 5G KPIs and performances
- 53.**Implementation and Performance Analysis of NB-IoT in LTE
- 54.**The virtual user: The holistic manager of our IoT applications
- 55.**Multi-tenancy in decentralised IoT



- 56.**Human Data Interaction in IoT: The ownership aspect
- 57.**Creating people-aware IoT applications by combining design thinking and user-centered design methods
- 58.**Chatty factories: A vision for the future of product design and manufacture with IoT
- 59.**Enabling IoT connectivity for ModbusTCP sensors
- 60.**Low-Cost Compact Theft-Detection System using MPU-6050 and Blynk IoT Platform
- 61.**IoT Based Longitudinal Monitoring of Activity and Posture Transitions in Smart Homes
- 62.**Smart Health Monitoring System using IOT and Machine Learning Techniques
- 63.**IoT-Based Smart And Healthy Wardrobe System
- 64.**IoT based Smart Water Quality Monitoring and Flow Control System
- 65.**IoT Based Domestic Fish Feeder
- 66.**Knowledge Based Real Time Monitoring System for Aquaculture Using IoT
- 67.**Experiments with Protocols and Frameworks Used in IoT
- 68.**IoT-Based System for Supervision and Control of a Transmission Center
- 69.**S-MANAGE Protocol For Software-Defined IoT
- 70.**Tunneling Field Effect Transistors for Enhancing Energy Efficiency and Hardware Security of IoT Platforms: Challenges and Opportunities
- 71.**Internet of Things using Node-Red and alexa
- 72.**Smart-Lab: Design and Implementation of an IoT-based Laboratory Platform
- 73.**Research on the Internet of Things Platform for Smart and Environmental Protection
- 74.**Hardware and Software Framework for Controlling and Monitoring IoT Appliances
- 75.**Internet of Things orchestration using DagOn\* workflow engine
- 76.**Controlling of home appliances through Internet

#### **M. Real-time monitoring**

- 1.** A Vision of IoT: Applications, Challenges, and Opportunities With China Perspective
- 2.** Internet of Things: Vision, application areas and research challenges
- 3.** Blockchain-based traceability in Agri-Food supply chain management: A practical implementation
- 4.** Design of Software and Data Analytics for Self-Powered Wireless IoT Devices
- 5.** A trust management model for sensor enabled mobile devices in IoT

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- 6.** An Extensible and Transparent Thing-to-Thing Security Enhancement for MQTT Protocol in IoT Environment
- 7.** Ultrasonic generator for the piezoelectric transducer in IoT
- 8.** High-Level IoT Governance Model Proposal for Digitized Ecosystems
- 9.** Building an IoT Framework for Connected Dairy
- 10.** Analysis of Analog Signal from PIR-sensors for Human Analytics in an IOTized Environment
- 11.** Secure Transmission for SWIPT IoT Systems With Full-Duplex IoT Devices
- 12.** Implementation of Environment Parameters Monitoring in a Manufacturing Industry using IOT
- 13.** On the Latency-Energy Performance of NB-IoT Systems in Providing Wide-Area IoT Connectivity
- 14.** Vehicle-Based Relay Assistance for Opportunistic Crowdsensing Over Narrowband IoT (NB-IoT)
- 15.** Smart water level monitoring and management system using IoT
- 16.** Remote sensing and controlling of greenhouse agriculture parameters based on IoT
- 17.** A framework for predicting the performance of IoT protocols, a use case based approach
- 18.** An IoT analysis framework: An investigation of IoT smart cameras' vulnerabilities
- 19.** Implementation of IoT based PV monitoring system with message queuing telemetry transfer protocol and smart utility network
- 20.** Smart fridge design using NodeMCU and home server based on Raspberry Pi 3
- 21.** Takagi-Sugeno Discrete Fuzzy Modeling: an IoT Controlled ABS for UAV
- 22.** IoT-KEEPER: Detecting Malicious IoT Network Activity Using Online Traffic Analysis at the Edge
- 23.** IoT Agent Platform Mechanism with Transparent Cloud Computing Framework for Improving IoT Security
- 24.** Context-Aware BPM Using IoT-Integrated Context Ontologies and IoT-Enhanced Decision Models
- 25.** Interledger Demo: IoT Integration
- 26.** Security Model of IOT-based Systems
- 27.** Device Verification and Compatibility for Heterogeneous Semantic IoT Systems
- 28.** Green Planning of IoT Smart Environments
- 29.** Predicting Periodic Energy Saving Pattern of Continuous IoT Based Transmission Data Using Machine Learning Model

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- 30.**Modeling SOA-Based IoT Applications with SoaML4IoT
- 31.**GeeLytics: Geo-distributed edge analytics for large scale IoT systems based on dynamic topology
- 32.**Securing Mobile IoT with Unmanned Aerial Systems
- 33.**Automated deployment of IoT services based on semantic description
- 34.**Impact of mobility on the IoT MAC infrastructure: IEEE 802.15.4e TSCH and LLN platform
- 35.**Attack graph “ Based vulnerability assessment of rank property in RPL- 6LOWPAN in IoT
- 36.**Security for the Industrial IoT: The Case for Information-Centric Networking
- 37.**Dynamic semantic interoperability of control in IoT-based systems: Need for adaptive middleware
- 38.**Bayesian maximum entropy and interacting multiple model based automatic sensor drift detection and correction in an IoT environment
- 39.**Using data prediction techniques to reduce data transmissions in the IoT
- 40.**Context transmission in personal IoT through an extension of the EPC Tag Data Standard
- 41.**Web of Topics: An IoT-aware model-driven designing approach
- 42.**Bacteria to power the smart sensor applications: Biofuel cell for low-power IoT devices
- 43.**Secure end-to-end communication for constrained devices in IoT-enabled Ambient Assisted Living systems
- 44.**Drugs interaction checker based on IoT
- 45.**DPWSim: A simulation toolkit for IoT applications using devices profile for web services
- 46.**ANGELS for distributed analytics in IoT
- 47.**Variable-rate mechanical crop adjustment for crop load balance in “Concordâ™ vineyards
- 48.**Interference Analysis in the LTE and NB-IoT Uplink Multiple Access with RF impairments
- 49.**Centralized Smart Governance Framework Based on IoT Smart City Using TTG- Classified Technique
- 50.**Requirements on the IoT communication platform and its standardization
- 51.**PhD Forum: Enabling Autonomic IoT for Smart Urban Services
- 52.**Provisioning Software-Defined IoT Cloud Systems
- 53.**Intrusion Detection System for IoT Devices

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**54.**Big Data in IoT

**55.**A Preliminary Evaluation of the SRE and SBPG Components of the IoT-HarPSeCA Framework

**56.**Towards a Standard-Based Security and Privacy of IoT System's Services

**57.**IoT Security and Privacy Issues

**58.**RADIS: Remote Attestation of Distributed IoT Services

**59.**Securing Mobile IoT Deployment Using Embedded SIM: Concerns and Solutions

**60.**SMTTrust: Proposing Trust-Based Secure Routing Protocol for RPL Attacks for IoT Applications

**61.**Blockchain for IoT-Based Healthcare: Background, Consensus, Platforms, and Use Cases

**62.**Evaluating IoT Reference Architecture

**63.**Indoor Occupancy Detection and Estimation using Machine Learning and Measurements from an IoT LoRa-based Monitoring System

**64.**Using graph databases to assess the security of thingernets based on the thingabilities and thingertivity of things

**65.**Generic Architecture for Edge Computing Based on SPF for Military HADR Operations

**66.**IoT-based Recommendation Systems – An Overview

**67.**Internet of Things (IoT): A vision, architectural elements, and security issues

**68.**A Framework for Uniformization of Security, Network and Management in IoT Applications

**69.**The Design and Implementation of GPS Controlled Environment Monitoring Robotic System based on IoT and ARM

**70.**Real-time Water Quality Monitoring and Notification System for Aquaculture

**71.**IoT Composer: Composition and Deployment of IoT Applications

**72.**Lux Meter Integrated with Internet of Things (IoT) and Data Storage (LMX20)

**73.**Performance Evaluation of Machine Learning Based Channel Selection Algorithm Implemented on IoT Sensor Devices in Coexisting IoT Networks

**74.**A Novel Patient Monitoring System Using Photoplethysmography and IOT in the Age of COVID-19

**75.**Development of a Wireless Stop Light Synchronization System for Single-lane Traffic Control

**76.**Smart Farm Monitoring Using LoRa Enabled IoT

**77.**A Novel IoT Cloud-based Real-Time Cardiac Monitoring Approach using NI myRIO-1900 for Telemedicine Applications



- 78.**Ensemble of Semi-Parametric Models for IoT Fog Modeling
- 79.**Internet of Things (IoT) Instructional Devices in STEM Classrooms: Past, Present and Future Directions
- 80.**An IoT solution for load monitoring and tracking of garbage-truck fleets
- 81.**Modeling of Aggregated IoT Traffic and Its Application to an IoT Cloud
- 82.**IoT-Praetor: Undesired Behaviors Detection for IoT Devices
- 83.**Concepts and requirements of IoT networks using IoT Data Exchange Platform toward International standards
- 84.**Data Flow in Low-Power Wide-Area IoT Applications
- 85.**Analysis of Different IoT Protocols for Heterogeneous Devices and Cloud Platform
- 86.**IoT Service Slicing and Task Offloading for Edge Computing
- 87.**ASTo: A tool for security analysis of IoT systems
- 88.**Learnerâ€™s Dilemma: IoT Devices Training Strategies in Collaborative Deep Learning
- 89.**Objects that agree on task frequency in the IoT: A lifetime-oriented consensus based approach
- 90.**Wireless Image Transmission for Visualization around Axial Flow Fan Blades in IoT
- 91.**Impact assessment for data-driven innovation in cognitive IoT architectures
- 92.**Sequential decision-making in healthcare IoT: Real-time health monitoring, treatments and interventions
- 93.**Usage of ZigBee and LoRa wireless technologies in IoT systems
- 94.**NB-IoT Optimization on Paging MCS and Coverage Level
- 95.**Powering Wireless Sensor Nodes for Industrial IoT Applications using Vibration Energy Harvesting
- 96.**On realizing distributed topology control in low-power IoT platforms

## **N. Data analytics**

- 1.** Exposing Bluetooth lower layers for IoT communication
- 2.** MEDIBOX â€“ IoT enabled patient assisting device
- 3.** Smart pricing for service differentiation and load control of the LTE-A IoT system
- 4.** Sensing WiFi network for personal IoT analytics
- 5.** Group-based Transmission Scheduling Scheme for Building LoRa-based Massive IoT
- 6.** Exploiting smart city IoT for disaster recovery operations
- 7.** IoT Communication System Using Publish-Subscribe
- 8.** Security validation in IoT space



- 9.** A prototype bridge between automotive and the IoT
- 10.** A Proposal of Web API Design for IoT Data Utilization Based on Smart Communities
- 11.** A novel fusion methodology for indoor positioning in IoT-based mobile applications
- 12.** Improving architecture of LTE mobile network for IoT services provisioning
- 13.** Choosing Machine Learning Algorithms for Anomaly Detection in Smart Building IoT Scenarios
- 14.** CIS: Community-based information sharing mechanism for automotive IoT
- 15.** Secret Key Attacks in MIMO IoT Communications by Using Self-injection Artificial Noise
- 16.** Optimize cloud computations using edge computing
- 17.** Highlighting the Key Factors of an IoT Platform
- 18.** Security and Performance in IoT: A Balancing Act
- 19.** Real-Time Demand Response Using NB-IoT
- 20.** Cyber Physical IoT Device Management Using a Lightweight Agent
- 21.** Brief Industry Paper: Catching IoT Malware in the Wild Using HoneyIoT
- 22.** Inferring, Characterizing, and Investigating Internet-Scale Malicious IoT Device Activities: A Network Telescope Perspective
- 23.** IoT-communications as a service: Actor roles on indoor wireless coverage
- 24.** Fairness-Aware Throughput Maximization Over Cognitive Heterogeneous NOMA Networks for Industrial Cognitive IoT
- 25.** Augmented IoT Service Architecture Assisting Safe Firefighting Operation
- 26.** Demo Abstract: More Than Two Decades of IoT
- 27.** IoT Object Authentication for Cyber Security : Securing Internet with Artificial intelligence
- 28.** Surveillance Robot in Hazardous Place Using IoT Technology
- 29.** Towards a Blockchain-enabled IoT Platform using oneM2M Standards
- 30.** Machine Learning in IoT Security Performance Analysis of Outage Probability of link selection for Cognitive Networks
- 31.** An Energy-Aware Wireless Sensor Network for Data Acquisition in Smart Energy Efficient Building
- 32.** Ranking Resilience Events in IoT Industrial Networks
- 33.** Towards realization of an IoT environment: A real-life implementation of an IoT environment and its analytics
- 34.** Distributed, Secure, Self-Sovereign Identity for IoT Devices

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- 35.**A Smart Trolley for Smart Shopping
- 36.**A Smart Home Energy Consumption Monitoring System Integrated with Internet Connection
- 37.**Smart-home automation using IoT-based sensing and monitoring platform
- 38.**Real-time IMC-PID Control and Monitoring of Essential Oil Extraction Process Using IoT
- 39.**An assessment of the impact of wireless interferences on IoT emitter identification using Time Frequency representations and CNN
- 40.**IoT System Accomplishment using BlockChain in Validating and Data Security with Cloud
- 41.**An IoT-Aware Architectural Model for Smart Habitats
- 42.**Lightweight and Scalable DAG based distributed ledger for verifying IoT data integrity
- 43.**Application of Distributed Data Center in Logistics as Cloud Collaboration for handling Disaster Relief
- 44.**Designing of Combinatorial Communication Networks Using Efficient Heuristic Tabu Search Algorithm
- 45.**Filtration Based Noise Reduction Technique in an Image
- 46.**Energy-efficient Sensors in Data Centers for Industrial Internet of Things (IIoT)
- 47.**Statistical Analysis of Tweeter Data Using Language Model With KLD
- 48.**Humour Agent Detection in Puns
- 49.**Understanding the Users Personal Attributes Selection Tendency across Social Networks
- 50.**Detecting and Reporting Forest Fire through Deployment of Three Dimensional Multi-sink Wireless Sensor Network
- 51.**Implementation Techniques for Frequency Phasor Estimation in Phasor Measurement Units (PMUs)
- 52.**Optimization of security issues in adoption of cloud ecosystem
- 53.**A Detailed Subjective Evaluation of Devanagari Based Text To Speech System
- 54.**Punjabi to English Machine Transliteration for Proper Nouns
- 55.**Stridalyzer Insight Smart Insoles: a Clinical Grade Gait Analysis System
- 56.**Visual Machine Intelligence for Home Automation
- 57.**Easy to wear child guarding gadget
- 58.**Simulation Based Analysis of Deep Space Communication Routing Protocols
- 59.**A solitary approach to test path prioritization using significance of centrality measures

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- 60.**Multi-Objective Binary-PSO for Improving the Performance of P300 Speller
- 61.**ELNIDS: Ensemble Learning based Network Intrusion Detection System for RPL based Internet of Things
- 62.**A multi-objective workflow scheduling algorithm for cloud environment
- 63.**The smartphone as a medical device: Assessing enablers, benefits and challenges
- 64.**Design of Low Power CMOS Based Schmitt Trigger in 180nm Technology
- 65.**In Object-Oriented Software Framework Improving Maintenance Exercises Through K-Means Clustering Approach
- 66.**Defending DDoS against Software Defined Networks using Entropy
- 67.**Classification of Bangla Text Documents based on Inverse Class Frequency
- 68.**EEMGR: Energy and ETX aware Multipath Geographic Routing in WMSN
- 69.**Secure Cloud Data Using Hybrid Cryptographic Scheme
- 70.**Design Issues in Artificial Neural Network (ANN)
- 71.**Planning and optimizing the cost of DGs for Stability of Green Field Distribution Network
- 72.**Optimal tree led approach for effective decision making to mitigate mortality rates in a varied demographic dataset
- 73.**A Framework for Semantic based Image Retrieval from Cyberspace by mapping low level features with high level semantics.
- 74.**Secure Energy Aware Routingin Wireless Sensor Networks
- 75.**Design of CMOS Based 1-bit Comparator with MTCMOS and Forced Stack Technique in 180nm Technology
- 76.**Energy Efficient Routing Scheme for Enhancing Lifetime in Wireless Sensor Networks
- 77.**A Neuro-Fuzzy Approach for Intrusion Detection in Energy Efficient Sensor Routing

**O. Automation**

- 1.** Network self-organization in the Internet of Things
- 2.** Image Processing Based Analysis of Cracks on Vertical Walls
- 3.** Nearby Neighboring Biclustering Approach
- 4.** Evaluation of DECT for low latency real-time industrial control networks
- 5.** Design and deployment of a heart rate monitoring system in a senior center
- 6.** Improving Security and Performance Parameter using Social Skeleton in heterogeneous VDTN
- 7.** D&RSense: Detection of Driving Patterns and Road Anomalies



- 8.** Automated Approach for Toll Detection Using Circular Hough Transform and Scalar Sharpness Index
- 9.** MAVNet: A Mobile Agent based framework for Vehicular Networks
- 10.** Quantitative assessment of tremor during deep brain stimulation using a wearable glove system
- 11.** Information Protection by Noise Generator for Tactical Smart Platforms
- 12.** Classification of Data to Enhance Data Security in Cloud Computing
- 13.** Service Platform for Automated IoT Service Provisioning
- 14.** Three-way Security Framework for Cloud based IoT Network
- 15.** IoT Based Automatic Electricity Monitoring and Remote Load Control System Using PIC18F4550
- 16.** IOT Based Smart Waste Management System
- 17.** Design and Implementation of a Sustainable IOT Enabled Greenhouse Prototype
- 18.** On Flashing Over The Air “FOTA” for IoT Appliances “An ATMELE Prototype
- 19.** Smart Framework of Electricity Billing system for Conservation of energy. : (Using IOT and Automation)
- 20.** Smart Office Area Monitoring & Control Based on IOT
- 21.** IoT Based Energy Efficient Automatic Streetlight
- 22.** IoT based Smart Ration System using Biometrics
- 23.** IOT based Wireless Controlled Smart Transportation System
- 24.** IoT-based physical security systems: Structures and PSMECA analysis
- 25.** PAG-IoT: A PUF and AEAD Enabled Trusted Hardware Gateway for IoT Devices
- 26.** Machine Learning based anomaly detection for IoT Network: (Anomaly detection in IoT Network)
- 27.** NB-IoT and eMTC: Engineering Results Towards 5G/IoT Mobile Technologies
- 28.** Software-Defined Edge Computing (SDEC): Principle, Open IoT System Architecture, Applications, and Challenges
- 29.** The symbIoTe Solution for Semantic and Syntactic Interoperability of Cloud-based IoT Platforms
- 30.** Flexible W-Band Rectifiers for 5G-powered IoT Autonomous Modules
- 31.** An ontology based context model for the discovery of IoT services in the Internet of Things
- 32.** Information Security of IoT Wireless Segment
- 33.** Building Reliable Routing Infrastructure for Green IoT Network
- 34.** Deep Q-Network for Enhanced Data Privacy and Security of IoT Traffic

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- 35.**Intelligent Classification of IoT Traffic in Healthcare Using Machine Learning Techniques
- 36.**Content-Sensitive Data Compression for IoT Streaming Services
- 37.**IoT Based People Detection for Emergency Scenarios
- 38.**Front-End IoT Application for the Bitcoin based on Proof of Elapsed Time (PoET)
- 39.**Design and Implementation of NS3-Based Simulation System of LEO Satellite Constellation for IoTs
- 40.**IoT Malware Dynamic Analysis Profiling System and Family Behavior Analysis
- 41.**Development of IoT Security Exercise Contents for Cyber Security Exercise System
- 42.**IoT Gateway Edge VNFs on uCPE
- 43.**IoT-enabled smart sockets for reconfigurable service provision
- 44.**Poster Abstract: Privacy in Blockchain-Enabled IoT Devices
- 45.**IoT Based Smart Home Automation Enabled with Manual Mode Switch Control
- 46.**Design of Anomaly Detection and Visualization Tool for IoT Blockchain
- 47.**Self-Adapting Model-Based SDSec For IoT Networks Using Machine Learning
- 48.**RSSI Measurement with Channel Model Estimating for IoT Wide Range Localization using LoRa Communication
- 49.**IoT based activity recognition among smart home residents
- 50.**Prototyping of Urban Traffic-Light Control in IoT
- 51.**An IoT-aware workflow model designer for smart alarm service about companion animal health check
- 52.**The development of IoT-based non-obstructive monitoring system for human's sleep monitoring
- 53.**Secure IoT Device Authentication Scheme using Key Hiding Technology
- 54.**Work-in-progress: integrating low-power IoT devices to a blockchain-based infrastructure
- 55.**PhD Forum Abstract: Key Generation Scheme for LPWAN IoT devices
- 56.**A Hybrid Lightweight Cryptographic Scheme For Securing Node Data Based On The Feistel Cipher And MD5 Hash Algorithm In A Local IoT Network
- 57.**Deep Learning for IoT
- 58.**Poster Abstract: Secure Remote Key Initialization of Wireless IoT
- 59.**PhD Forum Abstract: Dynamic Inference on IoT Network Traffic using Programmable Telemetry and Machine Learning
- 60.**Analysis of the Narrow Band Internet of Things (NB-IoT) Technology

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- 61.**NB-IoT Network Field Trial: Indoor, Outdoor and Underground Coverage Campaign
- 62.**Implementation of Flood Warning System using IoT
- 63.**IoT based fruit quality measurement system
- 64.**IOT Based Data Acquistion and Automated Control System
- 65.**Water Pipeline Monitoring and Leak Detection using soil moisture Sensors: IoT based solution
- 66.**IoT based Smart Garbage System
- 67.**Mobile IoT device for BPM monitoring people with heart problems
- 68.**Prototyping of Singular Value Reconstruction Precoding for Reliable Non-Orthogonal IoT Signals
- 69.**An Overview of UPnP-based IoT Security: Threats, Vulnerabilities, and Prospective Solutions
- 70.**IoT and LORA Based Substation Monitoring and Control System
- 71.**Governing Elastic IoT Cloud Systems under Uncertainty
- 72.**IoT Botnet Detection Approach Based on PSI graph and DGCNN classifier
- 73.**Critical Requirements for Sustainable Deployment of IoT Systems in Nigeria
- 74.**Secure IoT Data Analytics in Cloud via Intel SGX
- 75.**Decentralized Access Control for IoT Data Using Blockchain and Trusted Oracles
- 76.**The Implementation of a SIP-Based Service Platform for 5G IoT Applications

**P. Enhancing on-board intelligence**

- 1.** IoT-Stream: A Lightweight Ontology for Internet of Things Data Streams
- 2.** An Experimental Evaluation of NB-IoT Coverage and Energy Consumption
- 3.** IoT MEMS: IoT Based Paradigm for Medical Equipment Management Systems of ICUs in Light of COVID-19 Outbreak
- 4.** Performance evaluation of full-cloud and edge-cloud architectures for Industrial IoT anomaly detection based on deep learning
- 5.** ARCA-IoT: An Attack-Resilient Cloud-Assisted IoT System
- 6.** Development of Temperature and Humidity Control System in Internet-of-Things based Oyster Mushroom Cultivation
- 7.** Smart car parking system prototype utilizing CCTV nodes: A proof of concept prototype of a novel approach towards IoT-concept based smart parking
- 8.** Smart Parking System using Cloud based Computation and Raspberry Pi
- 9.** A new approach towards IoT by using health care-IoT and food distribution IoT
- 10.**Temperature and humidity monitoring system for storage rooms of industries

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- 11.**Application of IoT in Monitoring Patient's Health Ward Relevant Parameters
- 12.**Research on the Fusion Model Reference Architecture of Sensed Information of Human Body for Medical and Healthcare IoT
- 13.**Sand Mining Detection - Using IOT
- 14.**A Novel Architecture for Information Sharing & Exchange between IoT Systems
- 15.**Simulink based Modeling and Performance Analysis of NB-IoT Uplink Scheduler
- 16.**Trust factor and reliability-over-a-period-of-time as key differentiators in IoT enabled services
- 17.**Development of IoT-Based Data Shoes for Daily Life Step Count
- 18.**A New Scheme for IoT Service Function Chains Orchestration in SDN-IoT Network Systems
- 19.**Declarative Construction of Distributed Event-Driven IoT Services Based on IoT Resource Models
- 20.**IoT Lab: Towards co-design and IoT solution testing using the crowd
- 21.**IoT-TD: IoT Dataset for Multiple Model BLE-based Indoor Localization/Tracking
- 22.**A Cognitive Oriented Framework for IoT Big-data Management Prospective
- 23.**Performance Analysis of NB-IoT Technology for Indoor IoT Applications
- 24.**MR-IoT: An information centric MapReduce framework for IoT
- 25.**IoT based Efficient Epileptic Seizure Prediction System Using Deep Learning
- 26.**Virtualization in Distributed Hot and Cold Storage for IoT Data Retrieval without Caching
- 27.**Compound Compression Method for Gathering Traffic of IoT/CPS Data
- 28.**A trust-based scheme employing evidence reasoning for IoT architectures
- 29.**Facilitation of IoT software maintenance via code analysis and generation
- 30.**POSTER: Blockchain-based Key Management Protocol for Resource-Constrained IoT Devices
- 31.**A fully logic CMOS compatible non-volatile memory for low power IoT applications
- 32.**Optimization based self-localization for IoT wireless sensor networks
- 33.**IoT Data Analytics as a Network Edge Service
- 34.**Compressed sensing for different sensors: A real scenario for WSN and IoT
- 35.**Practical limits of the secret key-capacity for IoT physical layer security
- 36.**Using web service gateways and code generation for sustainable IoT system development
- 37.**An architectural framework for low-power IoT applications
- 38.**IoT enabled Plant Sensing Systems for Small and Large Scale Automated Horticultural Monitoring

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- 39.**Vulnerable C/C++ code usage in IoT software systems
- 40.**Leveraging social notions to improve ID-to-locator mapping in IoT Identity Oriented Networks
- 41.**Use of blockchains for secure binding of metadata in military applications of IoT
- 42.**An IoT gateway centric architecture to provide novel M2M services
- 43.**A Cognitive Enabled, Edge-Computing Architecture for Future Generation IoT Environments
- 44.**An IoT Risk Analysis Approach for Smart Homes (Work-in-Progress)
- 45.**IoT Thing To Service Semantic Matching
- 46.**Mountain Pine Beetle Monitoring with IoT
- 47.**Selective decryption of outsourced IoT data
- 48.**Research of MQTT, CoAP, HTTP and XMPP IoT Communication protocols for Embedded Systems
- 49.**Framework of Big data Analysis about IoT-Home-device for supporting a decision making an effective strategy about new product design
- 50.**An ontology design pattern for IoT device tagging systems
- 51.**Reconfigurable dual mode IEEE 802.15.4 digital baseband receiver for diverse IoT applications
- 52.**Machine Learning Security Allocation in IoT
- 53.**Reliable and Fault-Tolerant IoT-Edge Architecture
- 54.**Low power routing and channel allocation method of wireless video sensor networks for Internet of Things (IoT)
- 55.**The COG-LO Framework: IoT-based COgnitive Logistic Operations for next generation logistics
- 56.**DAPS – A web based system for predicting IoT sensor data
- 57.**Improving energy efficiency in IoT with re-configurable virtual objects
- 58.**Design and Development of IoT Plugin for HPCC Systems
- 59.**Event-based communication for IoT networking
- 60.**Data-centric security in military applications of commercial IoT technology
- 61.**A Self-Powered Wearable Sensor Node for IoT Healthcare Applications
- 62.**Introducing Secure Provenance in IoT: Requirements and Challenges
- 63.**Rational Interoperability: A Pragmatic Path toward a Data-Centric IoT
- 64.**Algorithmic Approach to Security Architecture for Integrated IoT Smart Services Environment
- 65.**Reform of Internet of Things (IoT) Platforms: A Challenge to future Ecosystems

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**66.**IoT middleware for smart city: (An integrated and centrally managed IoT middleware for smart city)

**67.**An Edge Decentralized Security Architecture for Industrial IoT Applications

**68.**Blockchain Technology: A Smart and Efficient Way for Securing IoT Communication

**69.**Bluetooth Low Energy (BLE) Crackdown Using IoT

**70.**Implementation of relay hopper model for reliable communication of IoT devices in LTE environment through D2D link

**71.**IOT data-driven experimental process optimisation for kevlar fiberglass components for aeronautic

**72.**Blockchain-based secure firmware management system in IoT environment

**73.**IoT based Low-Cost Gas Leakage, Fire, and Temperature Detection System with Call Facilities

**74.**Security Implementation For Authentication In Iot Environments

**75.**IoT Node-Node Secure Communication Using RIPEMD-128 and DES

**76.**A Secure Platform for IoT Devices based on ARM Platform Security Architecture

**77.**Enhanced IoT-based Interoperable and Configurable Middleware using Semantic Web Techniques

**78.**Secure Communication Using Steganography in IoT Environment

**79.**The consumer security index for IoT: A protocol for developing an index to improve consumer decision making and to incentivize greater security provision in IoT devices

**80.**Classifier with Deep Deviation Detection in PoE-IoT Devices

**81.**Learning-in-the-Fog (LiFo): Deep Learning Meets Fog Computing for the Minimum-Energy Distributed Early-Exit of Inference in Delay-Critical IoT Realms

**82.**Machine Learning for Resource Management in Cellular and IoT Networks: Potentials, Current Solutions, and Open Challenges

**83.**Fog-based Data Fusion for Heterogeneous IoT Sensor Networks: A Real Implementation

**84.**Unified IoT Platform Architecture Platforms as Major IoT Building Blocks

**85.**Waste Management Improvement in Cities using IoT

**86.**A Novel Smart Gas Stove with Gas Leakage Detection and Multistage Prevention System Using IoT LoRa Technology

**87.**Kalki: A Software-Defined IoT Security Platform

**88.**Experimental Evaluation on NB-IoT and LoRaWAN for Industrial and IoT Applications

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- 89.**â€œOrganic optical data storageâ€ for securely safeguarding IoT secrets
- 90.**Parking IoT: An IoT Architecture to Collect Availability Data from Parking Lots
- 91.**Faults Detection Simulator of Generator using Internet of Things Technology
- 92.**TAS-IoT: Trust-Based Adaptive Security in the IoT
- 93.**IoT Device Virtualization for Efficient Resource Utilization in Smart City IoT Platform
- 94.**Device-Level IoT with Virtual I/O Device Interconnection
- 95.**Applicability of commodity, low cost, single board computers for Internet of Things devices
- 96.**IoT and Block Chain driven Intelligent Transportation System
- 97.**IoT: Secured and automated house
- 98.**Performance and Efficiency Optimization of Multi-layer IoT Edge Architecture
- 99.**The implementation of IoT for cloud system in industries-educational IoT case

#### **Q. Device connectivity**

- 1.** Designing a Communication Tier for the IoT Platform EMULSION
- 2.** Internet of Things (IoT) based Object Recognition Technologies
- 3.** SuJAL: Design and Development of IoT-Based Real-Time Lake Monitoring System
- 4.** Witness-based Approach for Scaling Distributed Ledgers to Massive IoT Scenarios
- 5.** The Internet of Things (IoT) in Tunisian Education and Healthcare: Prospects and Barriers to Improved Educational and Medical Outcomes
- 6.** Sensor Driven Priority Routing of Health Care Data Packet in IoT Network
- 7.** Energy Consumption Evaluation of Cellular Narrowband Internet of Things (NB-IoT) Modules
- 8.** Autotree: Connecting Cheap IoT Nodes with an Auto-Configuring WiFi Tree Network
- 9.** IOT Based Air Discomfort Reliever
- 10.**IoT Data Management and Lineage Traceability: A Blockchain-based Solution
- 11.**Performance analysis of security algorithms for IoT devices
- 12.**The unique reliable identity system of enabling lightweight device management in NMS mechanism for the U-IoT
- 13.**2-Phase Energy-Efficient Secure Positive Feedback Adiabatic Logic for CPA-Resistant IoT Devices
- 14.**Underwater Acoustic Channel Propagation Module for Simulation of Large-Scale Sub-Aquatic Internet of Things (IoT) Networks in JiST/SWANS
- 15.**Dynamic Analysis Tool for IoT Device

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- 16.**An efficient computation offloading architecture for the Internet of Things (IoT) devices
- 17.**IoT Based on-the-fly Visual Defect Detection in Railway Tracks
- 18.**An overview of IoT based smart homes
- 19.**LoRa Communication as a Solution for Real-Time Monitoring of IoT Devices at UNICAMP
- 20.**A Personal Healthcare IoT System model using Raspberry Pi 3
- 21.**Hardware emulation of IoT devices and verification of application behavior
- 22.**Data Pipeline for Generation and Recommendation of the IoT Rules Based on Open Text Data
- 23.**Improvement of security and scalability for IoT network using SD-VPN
- 24.**A New Approach for Security in Cloud Data Storage for IOT Applications Using Hybrid Cryptography Technique
- 25.**IoT-Based UPS Monitoring System Using MQTT Protocols
- 26.**Testing and selecting lightweight pseudo-random number generators for IoT devices
- 27.**Risks of Increase in the IoT Devices
- 28.**Secure IoT Communication using Blockchain Technology
- 29.**IoT-Key Towards Automation
- 30.**An IoT Gateway for Modbus and MQTT Integration
- 31.**Design and Simulation of Down Conversion Mixer for LoRa Band IOT System
- 32.**Automated Waste Segregation Bin with IoT-based Mobile Monitoring Application
- 33.**Ensuring Compliance of IoT Devices with Their Privacy Policy Agreement
- 34.**Indoor Electrical Installation Design Layout Using IOT
- 35.**Human Activity Recognition Based on Improved Bayesian Convolution Network to Analyze Health Care Data Using Wearable IoT Device
- 36.**IoT Search Method for Entity Based on Advanced Density Clustering
- 37.**The Narrowband Internet of Things (NB-IoT) Resources Management Performance State of Art, Challenges, and Opportunities
- 38.**Secure and Scalable Trust Management Model for IoT P2P Network
- 39.**IoT Network Security from the Perspective of Adversarial Deep Learning
- 40.**Secret Key based Sensor Node Security in the Internet of Things (IoT)
- 41.**Design and Performance of Unlicensed NB-IoT
- 42.**Secure Data Transportation With Software-Defined Networking and *k-n* Secret Sharing for High-Confidence IoT Services

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- 43.**Modern security threats in the Internet of Things (IoT): Attacks and Countermeasures
- 44.**LinkLab: A Scalable and Heterogeneous Testbed for Remotely Developing and Experimenting IoT Applications
- 45.**A Fog-Based Digital Forensics Investigation Framework for IoT Systems
- 46.**VR binoculars: An immersive visualization framework for IoT data streams
- 47.**IoT based smart home automation system using sensor node
- 48.**Monitoring Restaurants in Real-Time
- 49.**MAC layer-based evaluation of IoT technologies: LoRa, SigFox and NB-IoT
- 50.**IoT mashups with the WoTKit
- 51.**Z-IoT: Passive Device-class Fingerprinting of ZigBee and Z-Wave IoT Devices
- 52.**Towards an Ontology for IoT Context-Based Security Evaluation
- 53.**Understanding Energy Efficiency in IoT App Executions
- 54.**EE-IoT: An Energy-Efficient IoT Communication Scheme for WLANs
- 55.**Performance Evaluations of IoT Device Virtualization for Efficient Resource Utilization
- 56.**Robotic Extension to IoT Testbed for Indoor Environment Supervision
- 57.**Analyzing LoRa: A use case perspective
- 58.**How to see through the Fog? Using Peer to Peer (P2P) for the Internet of Things
- 59.**A Supplemental Zero-Energy Downlink Air-Interface Enabling 40-Year Battery Life in IoT Devices
- 60.**Business Models Leveraging IoT and Cognitive Computing
- 61.**IoT-TEG 4.0: A New Approach 4.0 for Test Event Generation
- 62.**Application of Internet of the Things(IOT) for the Water Conservation and Entrepreneurship in the Rural Area
- 63.**Lossless Compression Techniques for Low Bandwidth Io Ts
- 64.**Protocol enhancements for moving from connected IoT to efficient IoT
- 65.**Dynamic performance of smart sensor network using IoT
- 66.**IoT sensors test Equipment for Domestic application
- 67.**IoT based smart water tank with Android application
- 68.**Security threats in the application layer in IOT applications
- 69.**An Ultra-Low Power MOS2 Tunnel Field Effect Transistor PLL Design for IoT Applications
- 70.**Selection strategy of battery life of reefer container IoT monitoring device
- 71.**An IoT Design Approach to Residential Energy Metering, Billing and Protection
- 72.**Considerations on the Development of IoT Systems

**AG Groups:**

- ❖ **Active Galaxy Project Center, Chennai**
- ❖ **AG Research Institute for M.Phil / PHD**
- ❖ **AG Welfare Association**



- 73.**Optimizing Resource-Efficiency for Federated Edge Intelligence in IoT Networks
- 74.**In-Situ AI: Towards Autonomous and Incremental Deep Learning for IoT Systems
- 75.**Drone-aided Localization in LoRa IoT Networks
- 76.**Ubiquitous Data Accessing Method in IoT-Based Information System for Emergency Medical Services
- 77.**IoTexpert: Interconnection, Interoperability and Integration of IoT Platforms
- 78.**Energy Efficiency Characterization in Heterogeneous IoT System With UAV Swarms Based on Wireless Power Transfer
- 79.**All Eyes on You: Distributed Multi-Dimensional IoT Microservice Anomaly Detection
- 80.**Design of IoT-Based River Water Monitoring Robot Data Transmission Model Using Low Power Wide Area Network (LPWAN) Communication Technology
- 81.**Internet of Things (IoT): Research, Simulators, and Testbeds
- 82.**AMC-IoT: Automatic Modulation Classification Using Efficient Convolutional Neural Networks for Low Powered IoT Devices
- 83.**A Capability for Autonomous IoT System Security: Pushing IoT Assurance to the Edge
- 84.**Framework for PHY-MAC layers Prototyping in Dense IoT Networks using FIT/CorteXlab Testbed
- 85.**GSPN-Based Reliability-Aware Performance Evaluation of IoT Services
- 86.**A Health-IoT Platform Based on the Integration of Intelligent Packaging, Unobtrusive Bio-Sensor, and Intelligent Medicine Box
- 87.**Self-powered IoT Device based on Energy Harvesting for Remote Applications
- 88.**Dynamic Bluetooth beacons for people with disabilities
- 89.**A Platform Agnostic Solution for Inter-Communication between Virtual Reality Devices
- 90.**Monitoring Internet of Things Networks
- 91.**Multi-Channel Pure Collective Aloha MAC protocol with deollision algorithm for satellite uplink
- 92.**Utilising Correlated Information to Improve the Sustainability of Internet of Things Devices
- 93.**Automatic Smart and Safety Monitoring System for Kitchen Using Internet of Things
- 94.**An IoT Based Smart Water Quality Monitoring System using Cloud

**AG Groups:**

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- ❖ AG Research Institute for M.Phil / PHD
- ❖ AG Welfare Association



**95.**ECO: An IoT platform for wireless data collection, energy control and optimization of a miniaturized wind turbine cluster: Power analysis and battery life estimation of IoT platform

**96.**IoT Security Enhancement with Automated Identification Device using IOT SENTINEL

**97.**IoT Sentinel Demo: Automated Device-Type Identification for Security Enforcement in IoT

**98.**Blockchain Meets IoT: An Architecture for Scalable Access Management in IoT

**99.**IoT SENTINEL: Automated Device-Type Identification for Security Enforcement in IoT





## PG\_Medical BASED IEEE 2021-2022

### PROJECTS LIST

#### A. Network- centric IoT

- [1] Explained Artificial Intelligence Helps to Integrate Artificial and Human Intelligence Into Medical Diagnostic Systems: Analytical Review of Publications
- [2] Influence of Stress Factors on Cognitive Tasks Performance
- [3] An Analyzing Algorithm Based On Learning And Searching In Chinese Medical Big Data
- [4] Design and Development of a Tri Robot Machining Cell for Medical Product Manufacture
- [5] Heart Rate Variability Based Stress Assessment: A Case Study for Wearable Platforms
- [6] A network-based analysis of medical information extracted from electronic medical records
- [7] Informational Support of Automated Quality Management Systems for Medical Service Provision Based on the Prognosis of the Patient Affects Outcome in Social Emergencies
- [8] Photoelastic stress measurement in real-time for surgery simulator using gel materials
- [9] Intelligent Medical System of Designing Medical Technics and Technology
- [10] A Wearable EEG Instrument for Real-Time Frontal Asymmetry Monitoring in Worker Stress Analysis
- [11] Electrodermal Activity Based Pre-surgery Stress Detection Using a Wrist Wearable
- [12] Use of Information Technologies for Clinical Decision-Making in Medical Rehabilitation
- [13] Electronic Medical Record Context Signatures Improve Diagnostic Classification Using Medical Image Computing
- [14] Shear Stress Sensor for Soft Material with Built-In Piezoelectric Polymer Films
- [15] An Electronic Medical Record Management System Based on Smart Contracts
- [16] Application Analysis of Reasoning Engine Based on Artificial Intelligence in Medical Data Mining
- [17] Classification of Perceived Human Stress using Physiological Signals

**AG Groups:**

- ❖ **Active Galaxy Project Center, Chennai**
- ❖ **AG Research Institute for M.Phil / PHD**
- ❖ **AG Welfare Association**



- [18] iFeliz: An Approach to Control Stress in the Midst of the Global Pandemic and Beyond for Smart Cities using the IoMT
- [19] Individual Differences in Women During Walking Affect Tibial Response to Load Carriage: The Importance of Individualized Musculoskeletal Finite-Element Models
- [20] MMBERT: Multimodal BERT Pretraining for Improved Medical VQA
- [21] Analysis and Visualization Implementation of Medical Big Data Resource Sharing Mechanism Based on Deep Learning
- [22] Conceptualization of an ICU Infrastructure for Simulation Based Education in Medical Engineering & eHealth
- [23] The novel concept of a portable human stress-meter
- [24] Evolution of Facial Tissue Oxygen Saturation and Detection of Human Physical Stress
- [25] Edge-Cloud Computing and Artificial Intelligence in Internet of Medical Things: Architecture, Technology and Application
- [26] Brainwave Sensing Device Based Musical Stress
- [27] Stress-Lysis: A DNN-Integrated Edge Device for Stress Level Detection in the IoMT
- [28] Analysis and Categorization for the Standardization of Medical Referral Document Information
- [29] Non Invasive Continuous Detection of Mental Stress via Readily Available Mobile-Based Help Parameters
- [30] A Secure and Scalable Data Source for Emergency Medical Care using Blockchain Technology
- [31] Online Non-Collocated Estimation of Payload and Articular Stress for Real-Time Human Ergonomics Assessment
- [32] A New Assessment Method of the Pilot Stress Using ECG Signals During Complex Special Flight Operation
- [33] Study of Evaluation Method on Electromagnetic Environment for Safe Introduction of Wandering Sensing Systems Operable in Medical Field
- [34] Quantitative Assessment for Self-Tracking of Acute Stress Based on Triangulation Principle in a Wearable Sensor System
- [35] Deep Learning-Based Regression and Classification for Automatic Landmark Localization in Medical Images
- [36] Combined ARFI Variance of Acceleration (VoA), Vector Flow, and Wall Shear Stress for Assessing Atherosclerotic Risk: Ex-Vivo Human Cadaveric Results

**AG Groups:**

- ❖ **Active Galaxy Project Center, Chennai**
- ❖ **AG Research Institute for M.Phil / PHD**
- ❖ **AG Welfare Association**



- [37] An Identification of PSF Lag and Linger Effects for Dynamic Human Reliability Analysis: Application of Experimental Data
- [38] iMirror: A Smart Mirror for Stress Detection in the IoMT Framework for Advancements in Smart Cities
- [39] A Hybrid Machine Learning Method for the De-identification of Un-Structured Narrative Clinical Text in Multi-center Chinese Electronic Medical Records Data
- [40] Managerial medical decisions and methods of obtaining medical information in conditions of uncertainty
- [41] Life Care: GPS based Medical Emergency Solution
- [42] Restoration Medical Images from Speckle Noise Using Multifilters
- [43] aVRaid of Heights? - Exploring Integrated Non-Invasive Sensors For Stress Testing
- [44] Construction of Knowledge Graph of Stroke Based on Meta-analysis Literature
- [45] The Virtual Human Breathing Relaxation System
- [46] Medical Time-series Prediction With LSTM-MDN-ATTN
- [47] Into the Wild: The Challenges of Physiological Stress Detection in Laboratory and Ambulatory Settings
- [48] Medical Web-Based Role Play Enhances Teaching of Medical Terms
- [49] Security Defense Strategy for Cardiac Medical Diagnosis System (CMDS)
- [50] A Continuously Updated, Computationally Efficient Stress Recognition Framework Using Electroencephalogram (EEG) by Applying Online Multitask Learning Algorithms (OMTL)
- [51] Role of Machine Learning in Human Stress: A Review
- [52] TestIME: A Tool for Testing Chinese Input Method Engines in Electronic Medical Record Entry Task
- [53] Trapezius or facial muscles: Which one is more suitable for the measurement of stress using sEMG signals?
- [54] Construction of Automatic Scoring System to Support Objective Evaluation of Clinical Skills in Medical Education
- [55] DICOM Integration Libraries for Medical Image Interoperability: A Technical Review
- [56] Information Technologies in Professional Training of Medical University Graduates: Modelling Standard Interaction with Outpatients and Treatment Process
- [57] Wireless power transmission for implantable medical devices using focused ultrasound and a miniaturized 1-3 piezoelectric composite receiving transducer

**AG Groups:**

- ❖ **Active Galaxy Project Center, Chennai**
- ❖ **AG Research Institute for M.Phil / PHD**
- ❖ **AG Welfare Association**



- [58] Centralization of Medical Gas Pressure Monitoring Based on ATMega328
- [59] Stress analysis of shelf acetabuloplasty for acetabular dysplasia patients using dynamical load during walking
- [60] Design of a Wearable System to Capture Physiological Data to Monitor Surgeons' Stress During Surgery
- [61] Toward Virtual Stress Inoculation Training of Prehospital Healthcare Personnel: A Stress-Inducing Environment Design and Investigation of an Emotional Connection Factor
- [62] Extraction and Classification of TCM Medical Records Based on BERT and Bi-LSTM With Attention Mechanism
- [63] Based on Public Health Service in Smart Medical Comprehensive Service Platform
- [64] Medical images contrast and detail enhancement using a multiscale morphological approach
- [65] Visualization of Decision Making in Digital Pathology as Educational Tool
- [66] Medical Entity Extraction and Knowledge Graph Construction
- [67] Stress Diagnostic System and Digital Medical Record Based on Internet of Things
- [68] SaYoPillow: Blockchain-Integrated Privacy-Assured IoMT Framework for Stress Management Considering Sleeping Habits
- [69] Ideal Warrior and Robot Relations: Stress and Empathy's Role in Human-Robot Teaming
- [70] Robust Watermarking Algorithm for Medical Volume Data in Internet of Medical Things
- [71] Research on Medical Service System Based on Big Data Technology
- [72] Evaluation and Classification of Physical and Psychological Stress in Firefighters using Heart Rate Variability
- [73] Human Dynamic Analysis and Inference system on Health problems and Stress in IT Industry by using Soft Computing Techniques
- [74] A Decision Tree Optimised SVM Model for Stress Detection using Biosignals
- [75] Method of Primary Processing Unstructured Medical Data
- [76] Smart Mutual Authentication Protocol for Cloud Based Medical Healthcare Systems Using Internet of Medical Things
- [77] Review on Machine Learning Frameworks in Drivers' Physiological Signal Analysis to Detect Stress
- [78] Towards Wearable and Flexible Sensors and Circuits Integration for Stress Monitoring

**AG Groups:**

- ❖ **Active Galaxy Project Center, Chennai**
- ❖ **AG Research Institute for M.Phil / PHD**
- ❖ **AG Welfare Association**



- [79] Requirements for a Reference Dataset for Multimodal Human Stress Detection
- [80] HRV based Stress Assessment of Individuals in a Work Environment
- [81] Protecting Medical Images by Using Fused Cryptographic Technique with Fog Computing
- [82] A Medical Image Encryption Algorithm Based on Hermite Chaotic Neural Network
- [83] An Architecture to Define Cohorts over Medical Imaging Datasets
- [84] Efficient Medical Video Streaming by Pre-Processing and Network Traffic Prioritization in Real-Time
- [85] Dynamical systems modeling of day-to-day signal-based patterns of emotional self-regulation and stress spillover in highly-demanding health professions
- [86] Compressing the Scenes of Medical Video by Using Eigenvector
- [87] Interferometric Investigation of Cell Stiffness and Morphology on Oxidative Stress- Induced Human Umbilical Vein Endothelial Cells (HUEVC)
- [88] Parametric Sequential Method for MRI-Based Wall Shear Stress Quantification
- [89] Stress-Lysis: An IoMT-Enabled Device for Automatic Stress Level Detection from Physical Activities
- [90] Peculiarities of Realization of a Web-Resources Professional Medical Periodic Edition
- [91] Detection of Stress in Human Brain
- [92] Heart rate monitoring under stress condition during behavioral analysis in children with neurodevelopmental disorders
- [93] Block Chain Based Internet of Medical Things for Uninterrupted, Ubiquitous, User-Friendly, Unflappable, Unblemished, Unlimited Health Care Services (BC IoMT U<sup>6</sup> HCS)
- [94] MCPL-Based FT-LSTM: Medical Representation Learning-Based Clinical Prediction Model for Time Series Events
- [95] Security Defense Strategy for Intelligent Medical Diagnosis Systems (IMDS)
- [96] Medical Tourism Information Support System
- [97] Patient Similarity via Joint Embeddings of Medical Knowledge Graph and Medical Entity Descriptions
- [98] A study on Medical Device Security Status in Medical Convergence Industry
- [99] Graph Regularized Hierarchical Diffusion Process With Relevance Feedback for Medical Image Retrieval
- [100]The Latest Progress of Research on the Social Risks and Regulation of International Artificial Intelligent in Medical Treatment Based on CiteSpace Method

**AG Groups:**

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- ❖ AG Research Institute for M.Phil / PHD
- ❖ AG Welfare Association



**AG Groups:**

- ❖ Active Galaxy Project Center, Chennai
- ❖ AG Research Institute for M.Phil / PHD
- ❖ AG Welfare Association



## ANTENNA BASED IEEE 2021-2022 PROJECTS LIST

1. Compact Planar Inverted-F Antenna for MicroSats Omnidirectional Communications
2. Surface-Mounted Ka-Band Vivaldi Antenna Array
3. Wide-Band and Wide-Angle Scanning Phased Array Antenna for Mobile Communication System
4. Wideband Circularly Polarized Split Patch Antenna Loaded With Suspended Rods
5. Design of Low-SAR Mobile Phone Antenna: Theory and Applications
6. A Circularly-Polarized-Reconfigurable Patch Antenna With Liquid Dielectric
7. Ten Antenna Array Using a Small Footprint Capacitive-Coupled-Shorted Loop Antenna for 3.5 GHz 5G Smartphone Applications
8. Pattern-Reconfigurable Yagi-Uda Antenna Based on Liquid Metal
9. A Mesh-Type Low RCS Reflectarray Antenna Based on Spoof Surface Plasmon Polariton
10. Simple 60 GHz Switched Beam Antenna for 5G Millimeter-Wave Applications
11. A Wideband Pattern Diversity Antenna With a Low Profile Based on Metasurface
12. A Novel Dual-Polarized Continuous Transverse Stub Antenna Based on Corrugated Waveguidesâ€”Part II: Experimental Demonstration
13. Reconfigurable Antenna Array With Reduced Power Consumptionâ€”Synthesis Methods and Experimental Validations in *S*-Band
14. Compact Dual-Frequency Antenna Array With Large Frequency Ratio
15. Triband Dual-Polarized Shared-Aperture Antenna for 2G/3G/4G/5G Base Station Applications
16. Two-Port Same-Polarized Patch Antenna Based on Two Out-of-Phase TM<sub>10</sub> Modes for Access-Point MIMO Antenna Application
17. A Low-Profile Vertically Polarized Antenna With Conical Radiation Pattern for Indoor Micro Base Station Application
18. A Wideband Dual-Polarized Endfire Antenna Array With Overlapped Apertures and Small Clearance for 5G Millimeter-Wave Applications
19. Low Scattering Patch Array Antenna Based on Grooved Ground
20. A Compact SIW Monopulse Antenna Array Based on Microstrip Feed

**AG Groups:**

- ❖ Active Galaxy Project Center, Chennai
- ❖ AG Research Institute for M.Phil / PHD
- ❖ AG Welfare Association



21. Wideband Fabry-Pérot Resonator Antenna Employing Multilayer Partially Reflective Surface
22. Low RCS Antenna Array With Reconfigurable Scattering Patterns Based on Digital Antenna Units
23. A Dual-Polarized and High-Gain Band Shared-Aperture Antenna With High Aperture Reuse Efficiency
24. Dual-Polarized Directive Ultrawideband Antenna Integrated With Horn and Vivaldi Array
25. Wideband Differentially Fed Patch Antennas Under Dual High-Order Modes for Stable High Gain



**AG Groups:**

- ❖ Active Galaxy Project Center, Chennai
- ❖ AG Research Institute for M.Phil / PHD
- ❖ AG Welfare Association



# TISSUE ENGINEERING & BIOMATERIALS BASED IEEE 2021-2022 PROJECTS LIST

1. Thermal Therapy With a Fully Electronically Steerable HIFU Phased Array Using Ultrasound Guidance and Local Harmonic Motion Monitoring
2. Assessment of Dielectric Implantable Biomaterials Compatibility Based on the Level of Low-intensity mm-range Signals
3. Microdevices for Cell Stimulation: Integrated Zinc Oxide Piezoelectric Nanostructures in Silicon Microparticles
4. Prevailing techniques for the treatment of Soft tissue injuries
5. Calcification Assessment of Bioprosthetic Heart Valve Tissues Using an Improved In Vitro Model
6. Micropatterning of Mammalian Cells on Plasma Polymerized Polypyrrole Thin Films
7. ANSYS Simulation of Polyethylene for Soft-Robotic Applications
8. A Clinical Prototype Transrectal Diffuse Optical Tomography (TRDOT) System for *In vivo* Monitoring of Photothermal Therapy (PTT) of Focal Prostate Cancer
9. Novel, Flexible, and Ultrathin Pressure Feedback Sensor for Miniaturized Intraventricular Neurosurgery Robotic Tools
10. Identity Recognition Based on Bioacoustics of Human Body
11. Focused Ultrasound Biofilm Ablation: Investigation of Histotripsy for the Treatment of Catheter-Associated Urinary Tract Infections (CAUTIs)
12. Determination of the Effect of Glycosaminoglycan Mimetic Peptide Hydrogels on Cell Viability for Cartilage Tissue Engineering Applications
13. Design and Simulation of a New Biomedical Production Process
14. Use of Waste Salmon Bones as a Biomaterial
15. A Microfluidic Device Platform Reconstructing Lung Pattern for Cancer Immunotherapy Applications
16. A miniature mechanical testing device for testing hydrogel-based biomaterials in a confocal microscope
17. Holographic Display-Based Control for High-Accuracy Photolithography of Cellular Micro-Scaffold with Heterogeneous Architecture

**AG Groups:**

- ❖ Active Galaxy Project Center, Chennai
- ❖ AG Research Institute for M.Phil / PHD
- ❖ AG Welfare Association



- 18.** Toward Geometric Control of Late-Stage Diffusion Properties for 3D Printed Biodegradable Microstructures
- 19.** Understanding Protein Networks Using Vester's Sensitivity Model
- 20.** Research Progress of Dental Tissue Engineering Technology
- 21.** Determination of Image-based Biomarkers for the Diagnosis of Hypertrophic Cardiomyopathy, Hypertensive Cardiomyopathy and Amyloidosis From Texture Analysis in Cardiac MRI
- 22.** Corrosion response of Mg-Ca alloy as a bone tissue substitute biomaterial
- 23.** Metamaterial Biosensor for ISM Band Biomedical Applications
- 24.** Comparative Analysis of Tagging and Feature-Tracking Cardiac MRI Techniques for the Evaluation of Cardiac Deformation
- 25.** PSPU-Net for Automatic Short Axis Cine MRI Segmentation of Left and Right Ventricles
- 26.** Rate-Dependent and Relaxation Properties of Porcine Aortic Heart Valve Biomaterials
- 27.** Creation of Three-dimensional Composites of Tricalcium Phosphate and Single-wall Carbon Nanotubes for Bone Tissue Engineering
- 28.** Highly Efficient Spatially Offset Raman Spectroscopy to Profile Molecular Composition in Bone
- 29.** Piezoelectric and Magnetoelectric Scaffolds for Tissue Regeneration and Biomedicine
- 30.** A Novel Bipolar Cautery Tool for Minimally-Invasive Neuroendoscopic Procedures

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- A Research Institute for M.Phil / PHD, Chennai
- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



## We are familiar with following Technologies

- ❖ DOT\_NET
- ❖ BIG-DATA
- ❖ ANDROID
- ❖ MATLAB

## Cloud Computing IEEE Projects

- 1) Hedonic Pricing of Cloud Computing Services
- 2) MTFCT: A task offloading approach for fog computing and cloud computing
- 3) The Key of Application Software Service in Science Cloud Computing
- 4) Comments on "Secure Data Sharing in Cloud Computing Using Revocable-Storage Identity-Based Encryption"
- 5) Research and Development of Data Security Multidimensional Protection System in Cloud Computing Environment
- 6) MockFog 2.0: Automated Execution of Fog Application Experiments in the Cloud
- 7) Green Computing in Cloud Computing
- 8) Towards Optimizing Task Scheduling Process in Cloud Environment
- 9) High-Performance Mining of COVID-19 Open Research Datasets for Text Classification and Insights in Cloud Computing Environments
- 10) A Cloud Computing Capability Model for Large-Scale Semantic Annotation
- 11) Heterogeneous Task Co-location in Containerized Cloud Computing Environments
- 12) Mission Swachhta : Mobile application based on Mobile Cloud Computing
- 13) Enhancing the Reliability of Cloud Data by Implementing AES Algorithm
- 14) Abnormal Traffic Monitoring Methods Based on a Cloud Computing Platform
- 15) Cloud Colonography: Distributed Medical Testbed over Cloud
- 16) An Electromagnetic Situation Calculation Method Based on Edge Computing and Cloud Computing
- 17) An Application Placement Technique for Concurrent IoT Applications in Edge and Fog Computing Environments
- 18) Artificial Intelligence (AI)-Centric Management of Resources in Modern Distributed Computing Systems

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- A Research Institute for M.Phil / PHD, Chennai
- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



- 19) Improved Max-Min Algorithm for Resource Allocation in Cloud Computing
- 20) An Analytical Survey for Improving Authentication levels in Cloud Computing
- 21) Optimal Algorithm Allocation for Single Robot Cloud Systems
- 22) Modified Genetic Based Algorithm for Load Balancing in Cloud Computing
- 23) Panel: Incorporating Cloud Computing Competences into Computing Curriculum:  
Challenges & Prospects
- 24) Computation Offloading Strategy Based on Deep Reinforcement Learning in  
Cloud-Assisted Mobile Edge Computing
- 25) A Succinct Review Of Intelligent Computational Techniques In Green Cloud  
Computing
- 26) Analyzing the Performance of Smart Industry 4.0 Applications on Cloud  
Computing Systems
- 27) A Lightweight Authentication and Inter-Cloud Payment Protocol for Edge  
Computing
- 28) Cloud Load Balancing Algorithm
- 29) A Volunteer-Supported Fog Computing Environment for Delay-Sensitive IoT  
Applications
- 30) The Model of Big Data Cloud Computing Based on Extended Subjective Logic
- 31) A Survey on Cloud Security Issues and Solution
- 32) Using Agent Solutions and Visualization Techniques to Manage Cloud-based  
Education System
- 33) Research and Application of Data Privacy Protection Technology in Cloud  
Computing Environment Based on Attribute Encryption
- 34) The Development of IoT-Smart Basket: Performance Comparison between Edge  
Computing and Cloud Computing System
- 35) Stacker: A Holistic Cloud Computing Based Framework for Smart Cities
- 36) Communication Mode of Computer Cluster Network in Cloud Environment based  
on Neural Computing
- 37) A Review on Task Scheduling in Cloud Computing using parallel Genetic  
Algorithm
- 38) Intrusion Detection and Prevention using Honeypot Network for Cloud Security

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- A Research Institute for M.Phil / PHD, Chennai
- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



- 39)** Cloud Resource Provisioning and Bottleneck Eliminating for Meshed Web Systems
- 40)** Fuzzy Logic based QoS Management and Monitoring System for Cloud Computing
- 41)** Efficient Computing Resource Sharing for Mobile Edge-Cloud Computing Networks
- 42)** Reliability Evaluation for a Cloud Computer Network with Fog Computing
- 43)** Measuring Effective Scheduling Interval Against VM Load with Rapid Elasticity in Cloud Computing
- 44)** Context-Aware Placement of Industry 4.0 Applications in Fog Computing Environments
- 45)** Issues and Challenges of Cloud Computing in Performance Augmentation for Pervasive Computing
- 46)** Analytical Review of Data Security in Cloud Computing
- 47)** A smartcard-based key agreement framework for cloud computing using ECC
- 48)** Biometrics based access framework for secure cloud computing
- 49)** Green computing for Internet of Things
- 50)** Evolution of Emerging Computing paradigm Cloud to Fog: Applications, Limitations and Research Challenges
- 51)** Constrained Energy-Cost-Aware Workflow Scheduling for Cloud Environment
- 52)** Resource Allocation in Cloud Computing Environment based on NSGA-II
- 53)** A computational and analytical approach for cloud computing security with user data management
- 54)** A Proficient Load Balancing Using Priority Algorithm In Cloud Computing
- 55)** On the Performance of Fog-Cloud Computing for Real-time Surveillance Applications
- 56)** Significant Cloud Computing Service for Secured Heterogeneous Data Storing and its Managing by Cloud Users
- 57)** Research and Analysis on Key Technologies of Cloud Computing Platform Based on IPv6
- 58)** Fast Secure and Anonymous Key Agreement Against Bad Randomness for Cloud Computing

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- A Research Institute for M.Phil / PHD, Chennai
- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



- 59)** Efficient Virtualization in Cloud Computing
- 60)** A Reliable Trust Computing Mechanism Based on Multisource Feedback and Fog Computing in Social Sensor Cloud
- 61)** The Adoption of Cloud Computing CRM in SMEâ€™s, Southland, New Zealand
- 62)** An approach to analyse and protect data on Untrusted Cloud Network
- 63)** STAR: SLA-aware Autonomic Management of Cloud Resources
- 64)** The Optimization of Intelligent Community Management Model Based on Cloud Computing
- 65)** Discussion on Key Technologies of Cloud Game Based on 5G and Edge Computing
- 66)** Design Ideas of Mobile Internet Desktop System Based on Virtualization Technology in Cloud Computing
- 67)** Dynamic Resource Prediction in Cloud Computing for Complex System Simulation: A Probabilistic Approach Using Stacking Ensemble Learning
- 68)** Security algorithm on Cloud Storage System
- 69)** Analysis of the Development Path of China-Japan Industrial Park Based on Cloud Computing and Genetic Algorithm
- 70)** Research on online cloud storage technology
- 71)** CLAWER: Context-aware Cloud-Fog based Workflow Management Framework for Health Emergency Services
- 72)** Transformation of Governance through Information Technology by Cloud Computing
- 73)** Analysis on the Construction of Personalized Teaching System Based on Cloud Computing Platform
- 74)** A Hybrid Edge-Cloud Computing Method for Short-Term Electric Load Forecasting Based on Smart Metering Terminal
- 75)** ADRL: A Hybrid Anomaly-Aware Deep Reinforcement Learning-Based Resource Scaling in Clouds
- 76)** Cloud Computing Resources Utilization and Cost Optimization for Processing Cloud Assets
- 77)** Protecting Medical Images by Using Fused Cryptographic Technique with Fog Computing

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- A Research Institute for M.Phil / PHD, Chennai
- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



- 78) Container Orchestration on HPC Systems
- 79) The Application of the Edge-cloud Computing System Based on Reinforcement Learning in Large-scale Mask Recognition
- 80) Enhancing Fault Tolerance using Load Allocation Technique during Virtualization in Cloud Computing
- 81) An Improvement of Task Scheduling Algorithms for Green Cloud Computing
- 82) The Design of a Novel Smart Home Control System using Smart Grid Based on Edge and Cloud Computing
- 83) Security Threats and Challenges in Public Cloud Storage
- 84) Thermal Prediction for Efficient Energy Management of Clouds Using Machine Learning
- 85) A Task Scheduling Approach for Cloud Resource Management
- 86) Cloud Cryptography: User End Encryption
- 87) A Parallel Computing Framework for Cloud Services
- 88) A New Energy Aware Task Consolidation Scheme for Geospatial Big Data Application in Mist Computing Environment
- 89) Research on Physical Fitness Grading Model of Swimming Training Based on Real-Time Cloud Computing
- 90) Design of Distributed Network Mass Data Processing System based on Cloud Computing Technology
- 91) Study of Demand-Side Resources Collaborative Optimization System Based on the Cloud & Edge Computing
- 92) A study of Secure cryptographic based Hardware security module in a cloud environment
- 93) Data Storage Security Issues in Cloud Computing
- 94) A coordinated torque control strategy for PHEV based on Cloud Computing
- 95) Experimental Study of Network Traffic Overhead in Cloud Environments
- 96) Evidence for Monitoring the User and Computing the User's trust
- 97) Cloud Governance
- 98) Nature Inspired Approach Integration in Cloud Environment for Performance Elevation with Internet of Things

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- A Research Institute for M.Phil / PHD, Chennai
- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



- 99)** Mathematical Formulation of Prediction based Task Scheduling Method in Cloud Computing
- 100)** EEDTO: An Energy-Efficient Dynamic Task Offloading Algorithm for Blockchain-Enabled IoT-Edge-Cloud Orchestrated Computing
- 101)** Offloading in Cloud and Fog Hybrid Infrastructure Using iFogSim
- 102)** Security Challenges in Implementing a Secured Hybrid Cloud Model for e-Health Services
- 103)** Inter Cloud Interoperability Use Cases and Gaps in Corresponding Standards
- 104)** A Noise-aware Asymmetric Spectral Regularization Collective Matrix Factorization Algorithm for Recommender System in Cloud Services
- 105)** Cloud Computing Data Center Structure Based on Internet of Things and Its Scheduling Mechanism
- 106)** Performability Analysis of FogGIS Model for Geospatial Web Services
- 107)** A New Paradigm of Cloud Brokerage
- 108)** Architectural Vision of Cloud Computing in the Indian Government
- 109)** Relevance of Grid Computing for India in the era of Cloud Computing
- 110)** Discussion on Big Data Processing Mode of Test Vessel Based on Cloud Computing
- 111)** Fine-Grained Access Control in the Era of Cloud Computing: An Analytical Review
- 112)** An Efficient Task Scheduling Algorithm using Total Resource Execution Time Aware Algorithm in Cloud Computing
- 113)** Container Scheduling in Blockchain-based Cloud Service Platform
- 114)** Proposing Innovative Intruder Detection System for Host Machines in Cloud Computing
- 115)** Cloud-based Protection and Performance Improvement in the E-Health Management Framework
- 116)** Cluster Model for Edge Computing
- 117)** Resource Allocation in Combined Fog-Cloud Scenarios by Using Artificial Intelligence
- 118)** Modeling Smart Cloud Computing Resource Allocation in E-Learning

**AG Groups:**

- Active Galaxy (An Engineering Idea), Chennai
- A Research Institute for M.Phil / PHD, Chennai
- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



- 119) Speed Limit Camera Monitoring/Tracking System Using SaaS Cloud Computing Module and GPS
- 120) Towards Cloud Computing and Blockchain Integrated Applications
- 121) A Systematic Review of the Security in Cloud Computing: Data Integrity, Confidentiality and Availability
- 122) The World of Communication & Computing Platform In Research Perspective: Opportunities and Challenges
- 123) Performance-Based Pricing in Multi-Core Geo-Distributed Cloud Computing
- 124) An Attribute Based Encryption Scheme with Dynamic Attributes Supporting in the Hybrid Cloud
- 125) Application of cloud computing technology in metal exploration
- 126) Self-Scaling Clusters and Reproducible Containers to Enable Scientific Computing
- 127) Cloud Computing security classifications and taxonomies: a comprehensive study and comparison
- 128) Comparison of zero downtime based deployment techniques in public cloud infrastructure
- 129) Cloud Agent-Based Encryption Mechanism (CAEM): A Security Framework Model for Improving Adoption, Implementation and Usage of Cloud Computing Technology
- 130) Design of Cloud Computing Platform Based Accurate Measurement for Structure Monitoring Using Fiber Bragg Grating Sensors
- 131) Development Mobile Learning For Vegetable Farming In Indonesia Based On Mobile Cloud Computing
- 132) Simplified Workflow Simulation on Clouds based on Computation and Communication Noisiness
- 133) A Secure Data Dynamics and Public Auditing Scheme for Cloud Storage
- 134) Resource Management and Pricing for Cloud Computing based Mobile Blockchain with Pooling
- 135) Research on Meteorological Cloud Computing Platform Based on BP Neural Network

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- IJADST (International Journal), Chennai
- AG Welfare Association, Chennai



- 136) Design and Implementation of Trust-based Access Control Model for Cloud Computing
- 137) A Preliminary Study on Data Security Technology in Big Data Cloud Computing Environment
- 138) A Cloud-Guided Feature Extraction Approach for Image Retrieval in Mobile Edge Computing
- 139) GeoBD2: Geospatial Big Data Deduplication Scheme in Fog Assisted Cloud Computing Environment
- 140) MC2E – Meta-Cloud Computing Environment
- 141) Negotiation Based Resource Allocation in Cloud Computing Scenarios
- 142) Blockchain as a Platform for Secure Cloud Computing Services
- 143) A Preliminary Design for Authenticity of IoT Big Data in Cloud Computing
- 144) Research on Equipment Support Command Information Fusion Based on Cloud Computing
- 145) Performance Analysis of Two Cloud-Based IoT Implementations: Empirical Study
- 146) Adaptive Computing-Plus-Communication Optimization Framework for Multimedia Processing in Cloud Systems
- 147) Improving Health Care by Help of Internet of Things and Bigdata Analytics and Cloud Computing
- 148) Research on network performance optimization technology based on cloud-edge collaborative architecture
- 149) Intelligent Cloud Training System based on Edge Computing and Cloud Computing
- 150) A Framework of Knowledge Management in Classroom Action Research on Cloud Computing for Pre-Service Teachers
- 151) Energy-Efficient Hybrid Framework for Green Cloud Computing
- 152) Trusted Edge Cloud Computing Mechanism Based on FPGA Cluster
- 153) Cost-Aware Multimedia Data Allocation for Heterogeneous Memory Using Genetic Algorithm in Cloud Computing

**AG Groups:**

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- 154) Enhancement of Efficiency of Military Cloud Computing using Lanchester Model
- 155) Research on the Development of Cloud Computing
- 156) Infrastructure-efficient Virtual-Machine Placement and Workload Assignment in Cooperative Edge-Cloud Computing over Backhaul Networks
- 157) A Novel Solution to Cloud Data Security Issues
- 158) Risk Analysis of Cloud Computing in the Logistics Process
- 159) Research on the Application of Cloud Computing Technology in Urban Rail Transit
- 160) Research on Building Smart Campus Based on Cloud Computing Technology
- 161) Enhanced Modified HEFT Algorithm for Task Scheduling in Cloud Environment
- 162) Smart Agriculture Based on IoT and Cloud Computing
- 163) Stochastic Workload Scheduling for Uncoordinated Datacenter Clouds with Multiple QoS Constraints
- 164) ProTrust: A Probabilistic Trust Framework for Volunteer Cloud Computing
- 165) An efficient service dispersal mechanism for fog and cloud computing using deep reinforcement learning
- 166) Detection and Prevention Mechanisms for DDoS Attack in Cloud Computing Environment
- 167) Research of College Computer Laboratory Based on Cloud Computing Technology
- 168) Cloud Computing Inhibitors Among Small and Medium Enterprises
- 169) Towards Solving a Mixture of Issues Using Artificial Intelligence and Cloud Computing
- 170) Anomaly detection method of power dispatching data based on cloud computing platform
- 171) Cloud Computing: Comparison and Analysis of Cloud Service Providers-AWS, Microsoft and Google
- 172) Sledge: Towards Efficient Live Migration of Docker Containers

**AG Groups:**

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- 173) Secured Health Data Access in Cloud Computing Using Multiple Attribute-Based Encryptions
- 174) Methodological Methods to Improve the Efficiency of Cloud Storage by applying De-duplication Techniques in Cloud Computing
- 175) An Evaluation of Security Key in Mobile Cloud
- 176) Dynamic Priority-Based Efficient Resource Allocation and Computing Framework for Vehicular Multimedia Cloud Computing
- 177) Particle Swarm Algorithm Parameters Analysis for Scheduling Virtual Machines in Cloud Computing
- 178) An Empirical Study of Impact Factors on the Alignment of Cloud Computing and Enterprise
- 179) Research on the Sharing Model of University Archives Information Resources Based on Cloud Computing
- 180) Design of basic process of information security risk assessment in cloud computing environment
- 181) Mobi-IoST: Mobility-Aware Cloud-Fog-Edge-IoT Collaborative Framework for Time-Critical Applications
- 182) Delay-Aware SFC Provisioning in Hybrid Fog-Cloud Computing Architectures
- 183) Dynamically Partitioning Workflow over Federated Clouds for Optimising the Monetary Cost and Handling Run-Time Failures
- 184) To Carve out Private Cloud with Total Functionality
- 185) Providing Resilience on Cloud Computing
- 186) Cloud Allocation Technique: A Comparative Study
- 187) Intelligent Health Vessel ABC-DE: An Electrocardiogram Cloud Computing Service
- 188) A Survey on Health Care facilities by Cloud Computing
- 189) GMAS: A Geo-Aware MAS-Based Workflow Allocation Approach on Hybrid-Edge-Cloud Environment
- 190) Efficient Task Allocation for Cloud Using Bat Algorithm
- 191) Multimedia Processing Pricing Strategy in GPU-Accelerated Cloud Computing

**AG Groups:**

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- 192) Application of Cloud Edge Collaboration Architecture in Power IoT
- 193) A Novel Privacy Preserving Biometric Authentication Scheme Using Polynomial Time Key Algorithm In Cloud Computing
- 194) Design and implementation of high-performance cloud computing system
- 195) National Defense Cloud Strategy
- 196) Quantitative Modeling and Analytical Calculation of Elasticity in Cloud Computing
- 197) Anomaly Detection in Cloud Components
- 198) Learning-Driven Cloud Resource Provision Policy for Content Providers with Competitors
- 199) A Review on Various Data Encryption Techniques used in Cloud Enabled Data Centre
- 200) Comparison Study of Load Balancing Algorithm
- 201) An Anonymous Authentication System for Pay-As-You-Go Cloud Computing
- 202) Design and Implementation of Test System for Power 5G Communication Module Base on Cloud Computing Architecture
- 203) A Dynamic Scaling Scheme of Cloud-based DNN Training Clusters
- 204) Real-time Molecular Analysis Methods Based on Cloud Computing
- 205) An Improved k-Means Methods for Cloud Computing based Coding Big Data Environment
- 206) A Comparative Analysis of Security Services in Major Cloud Service Providers
- 207) Design and Implementation of E-commerce Recommendation System Model Based on Cloud Computing
- 208) The Use of Cloud Computing with Crowd Participation to Have an Alternative National Mangrove Map
- 209) Generative Design of the Roller Seat of the Wind Turbine Blade Turnover Machine Based on Cloud Computing
- 210) Architectural Design Alternatives Based on Cloud/Edge/Fog Computing for Connected Vehicles

**AG Groups:**

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- 211) Max-Min Energy Balance in Wireless-Powered Hierarchical Fog-Cloud Computing Networks
- 212) Recent Trends on Security Issues in Multi-Cloud Computing: A Survey
- 213) Research on the Construction of Integrated Management Information System for E-commerce Enterprises Based on Cloud Computing
- 214) An Optimal Approach for E-Commerce Application Service on to the Public Cloud Environment
- 215) Keynote: Orchestrating Vehicular Computing Resources to Form Floating Virtual Edge Servers
- 216) Mobile Cloud Computing Adoption Model as a Feasible Response to Countriesâ€™ Lockdown as a Result of the COVID-19 Outbreak and Beyond
- 217) Lambda: Optimizing Serverless Computing by Making Data Intents Explicit
- 218) Forecast Analysis of Research Chance on AES Algorithm to Encrypt during Data Transmission on Cloud Computing
- 219) Architecture of Big Data Mining Based on Cloud Computing in the Era of Artificial Intelligence
- 220) Towards e-learning ecosystem model based on cloud computing
- 221) Design of Big Data Compatible Storage System Based on Cloud Computing Environment
- 222) The Realization of Key Algorithm of Mobile Internet Traffic Information Mining Based on Cloud Computing
- 223) Research on the Architecture and its Implementation for Instrumentation and Measurement Cloud
- 224) Performance Evaluation of Big Data Applications in Cloud Providers
- 225) Remote health monitoring system of elderly based on Fog to Cloud (F2C) computing
- 226) Locality-Aware Scheduling for Containers in Cloud Computing
- 227) Multi-objective Cross-layer Resource Scheduling for Internet of Things in Edge-Cloud Computing
- 228) Dynamic resource allocation method based on Symbiotic Organism Search algorithm in cloud computing

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- 229)** Smart Contract-based Computing Resources Trading in Edge Computing
- 230)** Construction of the Collection Retrieval System of Intelligent Library Based on Cloud Computing
- 231)** Towards Securing Cloud & Information - Vision & Challenges
- 232)** Energy Efficient Algorithms based on VM Consolidation for Cloud Computing: Comparisons and Evaluations
- 233)** Control-over-the-cloud: A performance study for cloud-native, critical control systems
- 234)** Deadline-aware Dynamic Resource Management in Serverless Computing Environments
- 235)** Harmonization between Renewable Energy and Cloud Computing towards Green Computing A Case Study: Data Center at The University Of Jordan
- 236)** Study of lightweight ABE for cloud based IoT
- 237)** Modelling and Resource Scheduling approaches on Cloud Computing
- 238)** Privacy-Preserving Cloud Establishment and Data Dissemination Scheme for Vehicular Cloud
- 239)** Research on the Improvement of Data Mining Algorithm Based on Internet + System in Cloud Computing
- 240)** An Algorithm for Optimizing Small-Large Outer Join in Cloud Computing Environment
- 241)** GIS cloud computing based government Big Data analysis platform
- 242)** Imparting Quality Education with Practical Approach: Using Cloud Computing for Education Case Study
- 243)** Information Security Practice of Intelligent Knowledge Ecological Communities with Cloud Computing
- 244)** Image Classification Algorithm Based on Improved AlexNet in Cloud Computing Environment
- 245)** Study on Medical Information Resource Sharing System Based on Cloud Computing
- 246)** Analysis of Information Security Evaluation Models in the Cloud Computing Environment
- 247)** Cloud Computing-based Big Data mining Connotation and Solution

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- 248)** Cloud Computing Based Masked Face Recognition Application
- 249)** Profit-Driven Service-Chain Deployment For EDA Requests On Private  
Cloud



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## STRESS BASED IEEE 2k-PROJECTS

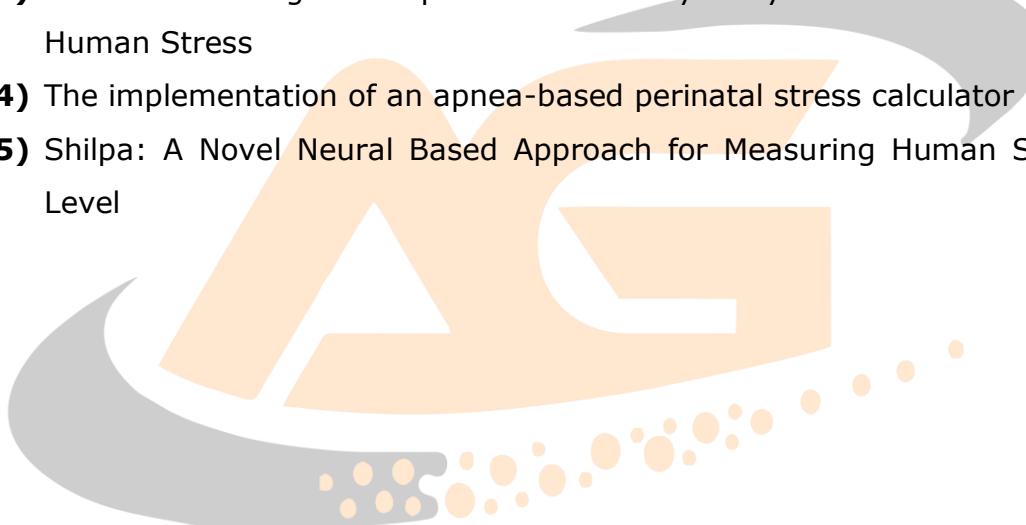
- 1)** Human Dynamic Analysis and Inference system on Health problems and Stress in IT Industry by using Soft Computing Techniques
- 2)** Remote Detection and Classification of Human Stress Using a Depth Sensing Technique
- 3)** The Virtual Human Breathing Relaxation System
- 4)** Classification of Perceived Human Stress using Physiological Signals
- 5)** A Continuously Updated, Computationally Efficient Stress Recognition Framework Using Electroencephalogram (EEG) by Applying Online Multitask Learning Algorithms (OMTL)
- 6)** Daily Stress Monitoring Using Heart Rate Variability of Bathtub ECG Signals
- 7)** Prediction of Daily Mental Stress Levels Using a Wearable Photoplethysmography Sensor
- 8)** Evaluation of an Integrated System of Wearable Physiological Sensors for Stress Monitoring in Working Environments by Using Biological Markers
- 9)** iFeliz: An Approach to Control Stress in the Midst of the Global Pandemic and Beyond for Smart Cities using the IoMT
- 10)** Electrodermal Activity Based Pre-surgery Stress Detection Using a Wrist Wearable
- 11)** A Study on the Development of a Day-to-Day Mental Stress Monitoring System using Personal Physiological Data
- 12)** The novel concept of a portable human stress-meter
- 13)** Poincaré Analysis based on Short-term Heart Rate Variability Data for Stress Evaluation
- 14)** Individuals' Stress Assessment Using Human-Smartphone Interaction Analysis
- 15)** iMirror: A Smart Mirror for Stress Detection in the IoMT Framework for Advancements in Smart Cities
- 16)** Detection of Stress in Human Brain

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- 17)** Brainwave Sensing Device Based Musical Stress
- 18)** Wearable heart rate monitoring as stress response indicator in children with neuro-developmental disorder
- 19)** Integrated Non-Invasive Vital Signs Monitoring System for Detecting Stress
- 20)** Stress-Lysis: An IoMT-Enabled Device for Automatic Stress Level Detection from Physical Activities
- 21)** Stress-Lysis: A DNN-Integrated Edge Device for Stress Level Detection in the IoMT
- 22)** Classification of Perceived Mental Stress Using A Commercially Available EEG Headband
- 23)** An Electrocardiogram Acquisition and Analysis System for Detection of Human Stress
- 24)** The implementation of an apnea-based perinatal stress calculator
- 25)** Shilpa: A Novel Neural Based Approach for Measuring Human Stress Level



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# STOCK MARKET PREDICTION BASED IEEE 2021-2022 PROJECTS LIST

1. Explainable Machine Learning Exploiting News and Domain-Specific Lexicon for Stock Market Forecasting
2. Reducing Manual Effort to Label Stock Market Data by Applying a Metaheuristic Search: A Case Study From the Saudi Stock Market
3. Stock Trend Prediction Using Candlestick Charting and Ensemble Machine Learning Techniques With a Novelty Feature Engineering Scheme
4. A Machine Learning-Based Early Warning System for the Housing and Stock Markets
5. Stock Price Manipulation Detection Using Deep Unsupervised Learning: The Case of Thailand
6. A Novel Improved Particle Swarm Optimization With Long-Short Term Memory Hybrid Model for Stock Indices Forecast
7. Equity Research Report-Driven Investment Strategy in Korea Using Binary Classification on Stock Price Direction
8. Multiobjective Automated Type-2 Parsimonious Learning Machine to Forecast Time-Varying Stock Indices Online
9. Ensembling and Dynamic Asset Selection for Risk-Controlled Statistical Arbitrage
10. Stock Price Prediction Based on Morphological Similarity Clustering and Hierarchical Temporal Memory
11. Intelligent Algorithmic Trading Strategy Using Reinforcement Learning and Directional Change
12. Manipulator Detection in Cryptocurrency Markets Based on Forecasting Anomalies
13. Stock Prediction Based on Genetic Algorithm Feature Selection and Long Short-Term Memory Neural Network
14. Building Intelligent Moving Average-Based Stock Trading System Using Metaheuristic Algorithms
15. Using Fuzzy Inference Systems for the Creation of Forex Market Predictive Models
16. Stock Ranking Prediction Using List-Wise Approach and Node Embedding Technique
17. A New Data-Driven Distributionally Robust Portfolio Optimization Method Based on Wasserstein Ambiguity Set



# ROBOT BASED IEEE 2021-2022

## PROJECTS LIST

1. A Backdrivable Kinematically Redundant (6+3)-Degree-of-Freedom Hybrid Parallel Robot for Intuitive Sensorless Physical Humanâ€“Robot Interaction
2. Effect of Cognitive Fatigue, Operator Sex, and Robot Assistance on Task Performance Metrics, Workload, and Situation Awareness in Human-Robot Collaboration
3. Best Viewpoints for External Robots or Sensors Assisting Other Robots
4. Adaptive Image-Based Leaderâ€“Follower Formation Control of Mobile Robots With Visibility Constraints
5. Deep reinforcement learning based mobile robot navigation: A review
6. Vibration Characteristics Analysis of Human- Robot Coupled System for Walking Posture of Elderly-Assistant Robot
7. Semantic Histogram Based Graph Matching for Real-Time Multi-Robot Global Localization in Large Scale Environment
8. Review of Robot Skin: A Potential Enabler for Safe Collaboration, Immersive Teleoperation, and Affective Interaction of Future Collaborative Robots
9. Pedestrian Trajectory Prediction Based on Transfer Learning for Human-Following Mobile Robots
10. Collision Avoidance Interaction Between Human and a Hidden Robot Based on Kinect and Robot Data Fusion
11. Path Planning for Reconfigurable hTetro Robot Combining Heat Conduction-Based and Discrete Optimization
12. Hierarchical Decomposed-Objective Model Predictive Control for Autonomous Casualty Extraction
13. Implementing Rat-Like Motion for a Small-Sized Biomimetic Robot Based on Extraction of Key Movement Joints
14. Adaptation of Gradient-Based Navigation Control for Holonomic Robots to Nonholonomic Robots

**AG Groups:**

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- ❖ **AG Research Institute for M.Phil / PHD**
- ❖ **AG Welfare Association**



- 15.** Using an Android Robot to Improve Social Connectedness by Sharing Recent Experiences of Group Members in Human-Robot Conversations
- 16.** Reconstruction of Backbone Curves for Snake Robots
- 17.** Experimental Verification of the Leader-Follower Formation Control of Two Wheeled Mobile Robots with Obstacle Avoidance
- 18.** Locomotion Strategies for Amphibious Robots-A Review
- 19.** Haptic-Enabled Decentralized Control of a Heterogeneous Human-Robot Team for Search and Rescue in Partially-Known Environments
- 20.** Towards a Modular and Distributed End-User Development Framework for Human-Robot Interaction
- 21.** Priority-Based Distributed Coordination for Heterogeneous Multi-Robot Systems With Realistic Assumptions
- 22.** Development of Duplex Eye Contact Framework for Human-Robot Inter Communication
- 23.** Advocating Attitudinal Change Through Android Robot's Intention-Based Expressive Behaviors: Toward WHO COVID-19 Guidelines Adherence
- 24.** Towards an Autonomous Robot-Assistant for Laparoscopy Using Exteroceptive Sensors: Feasibility Study and Implementation
- 25.** An Unsupervised Approach for Knowledge Construction Applied to Personal Robots
- 26.** Balance Stability Augmentation for Wheel-Legged Biped Robot Through Arm Acceleration Control
- 27.** CoboSkin: Soft Robot Skin With Variable Stiffness for Safer Humanâ€“Robot Collaboration
- 28.** Multisensor-Based Navigation and Control of a Mobile Service Robot
- 29.** Continuous Collision Detection of Pairs of Robot Motions Under Velocity Uncertainty
- 30.** UKF-Based Sensor Fusion Method for Position Estimation of a 2-DOF Rope Driven Robot
- 31.** An Efficient and Responsive Robot Motion Controller for Safe Human-Robot Collaboration
- 32.** Perception of Emotional Expression of Mobile Humanoid Robot Using Gait-Induced Upper Body Motion

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- 33.** Learning-Based Real-Time Detection of Robot Collisions Without Joint Torque Sensors
- 34.** Hey Robot, Which Way Are You Going? Nonverbal Motion Legibility Cues for Human-Robot Spatial Interaction
- 35.** Evaluation of Locomotion Performances for a Mecanum-Wheeled Hybrid Hexapod Robot
- 36.** An Approach to Acquire Path-Following Skills by Industrial Robots From Human Demonstration
- 37.** Fully Distributed Joint Localization and Target Tracking With Mobile Robot Networks
- 38.** Ultrathin Three-Axis FBG Wrist Force Sensor for Collaborative Robots
- 39.** Task-Based Role Adaptation for Human-Robot Cooperative Object Handling
- 40.** Embodied Robot Models for Interdisciplinary Emotion Research
- 41.** Extended Spectra-Based Grid Map Merging With Unilateral Observations for Multi-Robot SLAM
- 42.** Human-Robot Interaction Control for Robot Driven by Variable Stiffness Actuator With Force Self-Sensing
- 43.** SABER: Data-Driven Motion Planner for Autonomous Navigating Heterogeneous Robots
- 44.** Closed-Loop Position Control for Growing Robots Via Online Jacobian Corrections
- 45.** Design and Analysis of FCSTAR, a Hybrid Flying and Climbing Sprawl Tuned Robot
- 46.** Real-Time Self-Collision Avoidance in Joint Space for Humanoid Robots
- 47.** The Catenary Robot: Design and Control of a Cable Propelled by Two Quadrotors
- 48.** A Framework of Hybrid Force/Motion Skills Learning for Robots
- 49.** A Comparative Review of Hand-Eye Calibration Techniques for Vision Guided Robots
- 50.** Reliable Robot-Flock-Based Monitoring System Design via A Mobile Wireless Sensor Network
- 51.** In-Robot Network Architectures for Humanoid Robots With Human Sensor and Motor Functions
- 52.** Self-Organised Saliency Detection and Representation in Robot Swarms



- 53.** Terrain Identification for Humanoid Robots Applying Convolutional Neural Networks
- 54.** Real-Time Obstacle Avoidance Using Dual-Type Proximity Sensor for Safe Human-Robot Interaction
- 55.** Autonomy in Physical Human-Robot Interaction: A Brief Survey
- 56.** Novel Implementation of Multi-Robot Space Exploration Utilizing Coordinated Multi-Robot Exploration and Frequency Modified Whale Optimization Algorithm
- 57.** A Heuristic for Efficient Coordination of Multiple Heterogeneous Mobile Robots Considering Workload Balance
- 58.** Distributed Data Storage and Fusion for Collective Perception in Resource-Limited Mobile Robot Swarms
- 59.** Human Multi-Robot Safe Interaction: A Trajectory Scaling Approach Based on Safety Assessment
- 60.** Distributed and Communication-Aware Coalition Formation and Task Assignment in Multi-Robot Systems
- 61.** Prediction, Planning, and Coordination of Thousand-Warehousing-Robot Networks With Motion and Communication Uncertainties
- 62.** Adaptive Multi-Task Human-Robot Interaction Based on Human Behavioral Intention
- 63.** Multi-Robot Indoor Environment Map Building Based on Multi-Stage Optimization Method
- 64.** Immediate Generation of Jump-and-Hit Motions by a Pneumatic Humanoid Robot Using a Lookup Table of Learned Dynamics
- 65.** A Shared Control Method for Collaborative Human-Robot Plug Task
- 66.** Speed Gain in Elastic Joint Robots: An Energy Conversion-Based Approach
- 67.** A Framework for Autonomous Impedance Regulation of Robots Based on Imitation Learning and Optimal Control
- 68.** Origami-inspired New Material Feeding Mechanism for Soft Growing Robots to Keep the Camera Stay at the Tip by Securing its Path
- 69.** Cobots in Industry 4.0: A Roadmap for Future Practice Studies on Human–Robot Collaboration
- 70.** Physical Human–Robot Collaboration: Robotic Systems, Learning Methods, Collaborative Strategies, Sensors, and Actuators



- 71.** Learning Bodily Expression of Emotion for Social Robots Through Human Interaction
- 72.** Data-Driven Energy Estimation of Individual Instructions in User-Defined Robot Programs for Collaborative Robots
- 73.** A Safety-Aware Kinodynamic Architecture for Human-Robot Collaboration
- 74.** A Legged Robot With Thigh Bi-Articular Muscle-Tendon Complex
- 75.** Dynamic Path Correction of an Industrial Robot Using a Distance Sensor and an ADRC Controller
- 76.** Cooperative Target Enclosing Control of Multiple Mobile Robots Subject to Input Disturbances
- 77.** Message-Aware Graph Attention Networks for Large-Scale Multi-Robot Path Planning
- 78.** A UHF RFID-Based Dynamic Object Following Method for a Mobile Robot Using Phase Difference Information
- 79.** Cooperative Multi-Robot Object Transportation System Based on Hierarchical Quadratic Programming
- 80.** Design, Modeling, Control, and Experiments for a Fish-Robot-Based IoT Platform to Enable Smart Ocean
- 81.** LAMDA Control Approaches Applied to Trajectory Tracking for Mobile Robots
- 82.** Online Object Searching by a Humanoid Robot in an Unknown Environment
- 83.** Flexible Assimilation of Human's Target for Versatile Human-Robot Physical Interaction
- 84.** Design of a Compact Embedded Hydraulic Power Unit for Bipedal Robots
- 85.** An Output Feedback Based Robust Saturated Controller Design for Pavement Sweeping Self-Reconfigurable Robot
- 86.** Solving the Pattern Formation by Mobile Robots With Chirality
- 87.** Transfer Learning for Humanoid Robot Appearance-Based Localization in a Visual Map
- 88.** Biologically-Inspired Legged Robot Locomotion Controlled With a BCI by Means of Cognitive Monitoring
- 89.** A Visual Leader-Following Approach With a T-D-R Framework for Quadruped Robots



90. Social Density Monitoring Toward Selective Cleaning by Human Support Robot With 3D Based Perception System
91. Multirobot Collaborative Monocular SLAM Utilizing Rendezvous
92. Autonomous Target Docking of Nonholonomic Mobile Robots Using Relative Pose Measurements
93. Finite-Time Bearing-Only Formation Tracking of Heterogeneous Mobile Robots With Collision Avoidance
94. Distributed Adaptive Resilient Formation Control of Uncertain Nonholonomic Mobile Robots Under Deception Attacks
95. A General Robot Inverse Kinematics Solution Method Based on Improved PSO Algorithm
96. Efficient Motion Planning Based on Kinodynamic Model for Quadruped Robots Following Persons in Confined Spaces
97. The Operational Space Formulation on Humanoids Considering Joint Stiffness and Bandwidth Limit
98. An Online Robot Collision Detection and Identification Scheme by Supervised Learning and Bayesian Decision Theory
99. Reconfigurable Curved Beams for Selectable Swimming Gaits in an Underwater Robot
100. Survey of Human-Robot Collaboration in Industrial Settings: Awareness, Intelligence, and Compliance
101. Application of the ZED Depth Sensor for Painting Robot Vision System Development
102. Soft Robotic Oscillators With Strain-Based Coordination
103. Design and Experiment of an Anthropomorphic Robot Hand for Variable Grasping Stiffness
104. Probabilistic Resilience of Dynamic Multi-Robot Systems
105. Coupling Numerical Deformable Models in Global and Reduced Coordinates for the Simulation of the Direct and the Inverse Kinematics of Soft Robots
106. Calibration-Free Monocular Vision-Based Robot Manipulations With Occlusion Awareness



- 107.** Façade Cleaning Robot With Manipulating and Sensing Devices Equipped on a Gondola
- 108.** Resilient Task Allocation in Heterogeneous Multi-Robot Systems
- 109.** Towards Open and Expandable Cognitive AI Architectures for Large-Scale Multi-Agent Human-Robot Collaborative Learning
- 110.** Analysis of Interlaboratory Safety Related Tests in Power and Force Limited Collaborative Robots
- 111.** Terra: A Smart and Sensible Digital Twin Framework for Robust Robot Deployment in Challenging Environments
- 112.** Tennis Robot Design via Internet of Things and Deep Learning
- 113.** Mobile Robot Control Based on 2D Visual Servoing: A New Approach Combining Neural Network With Variable Structure and Flatness Theory
- 114.** Modeling, Gait Sequence Design, and Control Architecture of BADGER Underground Robot
- 115.** Design and Calibration of a Joint Torque Sensor for Robot Compliance Control
- 116.** Distributed Adaptive Cooperative Control With Fault Compensation Mechanism for Heterogeneous Multi-Robot System
- 117.** Robot Multimodal Object Perception and Recognition: Synthetic Maturation of Sensorimotor Learning in Embodied Systems
- 118.** Design and Analysis of a Snake-Inspired Crawling Robot Driven by Alterable Angle Scales
- 119.** Development of a Quadruped Robot System With Torque-Controllable Modular Actuator Unit
- 120.** Autonomous VTOL-UAV Docking System for Heterogeneous Multirobot Team
- 121.** Peer-to-Peer Relative Localization of Aerial Robots With Ultrawideband Sensors
- 122.** Visual Servoing of Flying Robot Based on Fuzzy Adaptive Linear Active Disturbance Rejection Control
- 123.** Towards Transparent Robot Learning Through TDRL-Based Emotional Expressions

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124. Shared Control Based on a Brain-Computer Interface for Human-Multirobot Cooperation
125. Reverse Psychology in Trust-Aware Human-Robot Interaction
126. Modeling the Timing and Duration of Grip Behavior to Express Emotions for a Social Robot
127. Distributed Resilient Submodular Action Selection in Adversarial Environments
128. Failure-Resilient Coverage Maximization With Multiple Robots
129. A Queue-Stabilizing Framework for Networked Multi-Robot Exploration
130. The Robotarium: Automation of a Remotely Accessible, Multi-Robot Testbed





# IMAGE PROCESSING WITH EMBEDDED SYSTEM BASED IEEE 2021-2022 PROJECTS LIST

1. Gbit/s Throughput Under 6.3-W Lossless Hyperspectral Image Compression on Parallel Embedded Devices
2. Hybrid Embedded-Systems-Based Approach to in-Driver Drunk Status Detection Using Image Processing and Sensor Networks
3. Anam-Net: Anamorphic Depth Embedding-Based Lightweight CNN for Segmentation of Anomalies in COVID-19 Chest CT Images
4. CNN-Based Mask-Pose Fusion for Detecting Specific Persons on Heterogeneous Embedded Systems
5. A Spectroscopic Diffuse Optical Tomography System for the Continuous 3-D Functional Imaging of Tissue—A Phantom Study
6. Deep Learning-Based Vein Localization on Embedded System
7. Reversible Data Hiding in Halftone Images Based on Dynamic Embedding States Group
8. SSSIC: Semantics-to-Signal Scalable Image Coding With Learned Structural Representations
9. Spatial-Spectral Density Peaks-Based Discriminant Analysis for Membranous Nephropathy Classification Using Microscopic Hyperspectral Images
10. SRARNet: A Unified Framework for Joint Superresolution and Aircraft Recognition
11. Multilevel Edge Features Guided Network for Image Denoising
12. DASGIL: Domain Adaptation for Semantic and Geometric-Aware Image-Based Localization
13. Invertible Image Decolorization
14. Learning Data Consistency and its Application to Dynamic MR Imaging
15. Learning Category- and Instance-Aware Pixel Embedding for Fast Panoptic Segmentation



- 16.** Deep Graph-Based Multimodal Feature Embedding for Endomicroscopy Image Retrieval
- 17.** Effects of Diffuse and Specular Reflections on Detecting Embedded Defects of Foams With a Bifocal Active Imaging System at  $0.22\text{\AA}$  THz
- 18.** Conversational Image Search
- 19.** A Deep Image Coding Scheme With Generative Network to Learn From Correlated Images
- 20.** A Full-Process Optimization-Based Background Subtraction for Moving Object Detection on General-Purpose Embedded Devices
- 21.** Graph Regularized Encoder-Decoder Networks for Image Representation Learning
- 22.** Noise-Tolerant Deep Neighborhood Embedding for Remotely Sensed Images With Label Noise
- 23.** Disentangling, Embedding and Ranking Label Cues for Multi-Label Image Recognition
- 24.** Hierarchical Attention Learning of Scene Flow in 3D Point Clouds
- 25.** Latent Representation Learning Model for Multi-Band Images Fusion via Low-Rank and Sparse Embedding
- 26.** Pulse Wave Imaging Coupled With Vector Flow Mapping: A Phantom, Simulation, and *In Vivo* Study
- 27.** Inversion Based on a Detached Dual-Channel Domain Method for StyleGAN2 Embedding
- 28.** Cover-Lossless Robust Image Watermarking Against Geometric Deformations
- 29.** Autofluorescence Image Reconstruction and Virtual Staining for In-Vivo Optical Biopsyng
- 30.** Low-Cost Network Scheduling of 3D-CNN Processing for Embedded Action Recognition
- 31.** Graph Embedding and Distribution Alignment for Domain Adaptation in Hyperspectral Image Classification
- 32.** A Sparse Representation Based Joint Demosaicing Method for Single-Chip Polarized Color Sensor
- 33.** S-VIT: Stereo Visual-Inertial Tracking of Lower Limb for Physiotherapy Rehabilitation in Context of Comprehensive Evaluation of SLAM Systems



- 34.** Multi-Saliency Map and Machine Learning Based Human Detection for the Embedded Top-View Imaging System
- 35.** Joint Blind Deconvolution and Robust Principal Component Analysis for Blood Flow Estimation in Medical Ultrasound Imaging
- 36.** A Hardware Accelerator for Onboard Spatial Resolution Enhancement of Hyperspectral Images
- 37.** Graph Embedding Multi-Kernel Metric Learning for Image Set Classification With Grassmannian Manifold-Valued Features
- 38.** Spectralâ€“Spatial Weighted Kernel Manifold Embedded Distribution Alignment for Remote Sensing Image Classification
- 39.** A Residual Chaotic System for Image Security and Digital Video Watermarking
- 40.** BSNet: Bi-Similarity Network for Few-shot Fine-grained Image Classification
- 41.** Image Steganography With Symmetric Embedding Using Gaussian Markov Random Field Model
- 42.** Rethinking Image Salient Object Detection: Object-Level Semantic Saliency Reranking First, Pixelwise Saliency Refinement Later
- 43.** Hyperspectral Image Restoration Combining Intrinsic Image Characterization With Robust Noise Modeling
- 44.** A Local Region-Based Level Set Method With Markov Random Field for Side-Scan Sonar Image Multi-Level Segmentation
- 45.** Design, Development and Evaluation of an Intelligent Animal Repelling System for Crop Protection Based on Embedded Edge-AI
- 46.** Superpixelwise Collaborative-Representation Graph Embedding for Unsupervised Dimension Reduction in Hyperspectral Imagery
- 47.** Detection and Recovery of Higher Tampered Images Using Novel Feature and Compression Strategy
- 48.** A Diagnostic Biomarker for Breast Cancer Screening *<italic>via</italic>* Hilbert Embedded Deep Low-Rank Matrix Approximation
- 49.** BioNetExplorer: Architecture-Space Exploration of Biosignal Processing Deep Neural Networks for Wearables
- 50.** A Learnable Joint Spatial and Spectral Transformation for High Resolution Remote Sensing Image Retrieval



# SAFETY ENGINEERING IEEE 2021- 2022 PROJECTS LIST

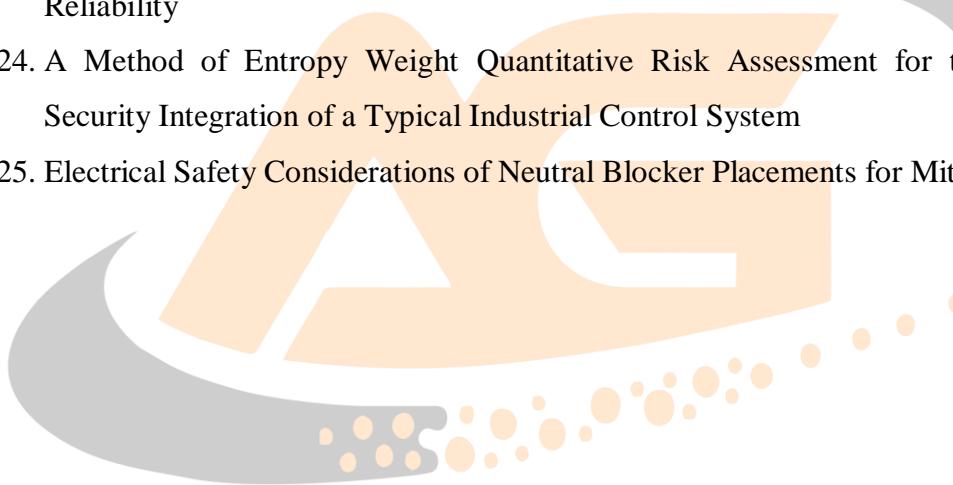
1. Reliability and Safety Engineering for Safety Critical Systems: An Interview Study With Industry Practitioners
2. The Influence of Team Human Capital on Safety Performance of Engineering Project Team: The Mediating Role of Safety Citizenship Behavior
3. Analysis of Mine Safety Performance Evaluation Law Based on Matter-Element Analysis and Rough Set of Concept Lattice Reduction
4. Digital Twin: Toward the Integration Between System Design and RAMS Assessment Through the Model-Based Systems Engineering
5. Principle Guidelines for Safe Power Supply Systems Development
6. Reliability and Safety Engineering for Safety-Critical Systems in Computer Science: A Study Into the Mismatch Between Higher Education and Employment in Brazil and India
7. Automotive Architecture Topologies: Analysis for Safety-Critical Autonomous Vehicle Applications
8. SafetyLens: Visual Data Analysis of Functional Safety of Vehicles
9. Enhancing Construction Truck Safety at Work Zones: A Microscopic Traffic Simulation Study
10. Research on the Evolutionary Decision-Making Behavior Among the Government, Farmers, and Consumers: Based on the Quality and Safety of Agricultural Products
11. Augmented Markov Model for Enhancing Hazard Rate Result of Safety Critical Systems Possessing Diverse Redundant Architecture
12. Equipment Mission Safety Evaluation Method Based on Function-Structure
13. Detection and Location of Safety Protective Wear in Power Substation Operation Using Wear-Enhanced YOLOv3 Algorithm
14. Evidence of the Effectiveness of Cyclic Technical Safety Mechanisms
15. A Survey of Safety Warnings Under Connected Vehicle Environments
16. Interlocking Safety Cases for Unmanned Autonomous Systems in Shared Airspaces

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17. Statistical Test Coverage for Linux-Based Next-Generation Autonomous Safety-Related Systems
18. Understanding the Non-Collision Related Battery Safety Risks in Electric Vehicles a Case Study in Electric Vehicle Recalls and the LG Chem Battery
19. Prediction of Hydration Heat of Mass Concrete Based on the SVR Model
20. Software Verification and Validation of Safe Autonomous Cars: A Systematic Literature Review
21. A Multimodality Fusion Deep Neural Network and Safety Test Strategy for Intelligent Vehicles
22. Train Route Information Visual Distance Extension and Analysis of Driver Cognitive Reliability
23. A New Safety Assessment Method Based on Belief Rule Base With Attribute Reliability
24. A Method of Entropy Weight Quantitative Risk Assessment for the Safety and Security Integration of a Typical Industrial Control System
25. Electrical Safety Considerations of Neutral Blocker Placements for Mitigating DC



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# ARTIFICIAL INTELLIGENCE BASED IEEE 2021-2022 PROJECTS LIST

1. Review of Artificial Intelligence Techniques in Imaging Data Acquisition, Segmentation, and Diagnosis for COVID-19
2. Pharmacological, Non-Pharmacological Policies and Mutation: An Artificial Intelligence Based Multi-Dimensional Policy Making Algorithm for Controlling the Casualties of the Pandemic Diseases
3. Artificial Intelligence And The Multivariate Approach In Predictive Analysis Of The Small Cap Index Of The Brazilian Stock Exchange
4. Hybrid Human-Artificial Intelligence for Autonomous Driving
5. Recent Developments in Detection of Central Serous Retinopathy through Imaging and Artificial Intelligence Techniques
6. Toward a Fully Automated Artificial Pancreas System Using a Bioinspired Reinforcement Learning Design: In Silico Validation
7. A Systematic Review of Human Computer Interaction and Explainable Artificial Intelligence in Healthcare With Artificial Intelligence Techniques
8. A Cloud-Based Computing Framework for Artificial Intelligence Innovation in Support of Multi-domain Operations
9. Enriching the transfer learning with pre-trained lexicon embedding for low-resource neural machine translation
10. Human Memory Update Strategy: A Multi-Layer Template Update Mechanism for Remote Visual Monitoring
11. Reinventing Innovation Management: The Impact of Self-Innovating Artificial Intelligence
12. Harnessing the Power of Smart and Connected Health to Tackle COVID-19: IoT, AI, Robotics, and Blockchain for a Better World
13. New Artificial Intelligence Approach to Inclination Measurement based on MEMS Accelerometer

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14. A Multicenter Study on Carotid Ultrasound Plaque Tissue Characterization and Classification Using Six Deep Artificial Intelligence Models: A Stroke Application
15. Survey on Quantum Circuit Compilation for Noisy Intermediate-Scale Quantum Computers: Artificial Intelligence to Heuristics
16. Artificial Intelligence for Enhanced Mobility and 5G Connectivity in UAV-Based Critical Missions
17. IFC-BD: An Interpretable Fuzzy Classifier for Boosting Explainable Artificial Intelligence in Big Data
18. The AI Digital Revolution in Innovation: A Conceptual Framework of Artificial Intelligence Technologies for the Management of Innovation
19. Dissociation Between Users' Explicit and Implicit Attitudes Toward Artificial Intelligence: An Experimental Study
20. Advancing Consumer Behavior: The Role of Artificial Intelligence Technologies and Knowledge Sharing
21. Artificial Intelligence in Radiation Therapy
22. Design of A Social Robot Interact with Artificial Intelligence by Versatile Control Systems
23. Artificial Intelligence and Smart Cities: A DEMATEL Approach to Adaptation Challenges and Initiatives
24. Artificial Intelligence and Information System Resilience to Cope With Supply Chain Disruption
25. Optimization Techniques and Formal Verification for the Software Design of Boolean Algebra Based Safety-Critical Systems
26. Sensorless Control of DC Microgrid Based on Artificial Intelligence
27. KAM-Net: Keypoint-Aware and Keypoint-Matching Network for Vehicle Detection from 2D Point Cloud
28. Multi-Objective Hybrid Artificial Intelligence Approach for Fault Diagnosis of Aerospace Systems
29. Learning Social Spatio-Temporal Relation Graph in the Wild and a Video Benchmark
30. Cost-Effective Valuable Data Detection Based on the Reliability of Artificial Intelligence

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31. An Artificial Intelligence-Based Quorum System for the Improvement of the Lifespan of Sensor Networks
32. Multi-agent modeling and simulation in the AI age





# RAILWAYS BASED IEEE 2021-2022

## PROJECTS LIST

1. Verification of Superconducting Feeder Cable in Pulse Current and Notch Operation on Railway Vehicles
2. Research on Recognition Method of Railway Perimeter Intrusions Based on  $\hat{I}$ -OTDR Optical Fiber Sensing Technology
3. OTFS-TSMA for Massive Internet of Things in High-Speed Railway
4. Internet of things for high-speed railways
5. Risk-Informed Support Vector Machine Regression Model for Component Replacement—A Case Study of Railway Flange Lubricator
6. UAV-LiDAR-Based Measuring Framework for Height and Stagger of High-Speed Railway Contact Wire
7. Space-Air-Ground Integrated Network Development and Applications in High-Speed Railways: A Survey
8. Concurrent Optimization of Mountain Railway Alignment and Station Locations With a Three-Dimensional Distance Transform Algorithm Incorporating a Perceptual Search Strategy
9. Improving Human Reliability Analysis for Railway Systems Using Fuzzy Logic
10. Tripartite Evolution Game of Railway Safety Supervision Under the Influence of Collusion Within the Enterprise
11. A Dynamic 3-D Wideband GBSM for Cooperative Massive MIMO Channels in Intelligent High-Speed Railway Communication Systems
12. Overview of resilient traction power supply systems in railways with interconnected microgrid
13. Modeling and Optimization of Semantic Segmentation for Track Bed Foreign Object Based on Attention Mechanism
14. Enhanced Few-Shot Learning for Intrusion Detection in Railway Video Surveillance
15. A Method of Classifying Railway Sleepers and Surface Defects in Real Environment

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16. Characterization and Implementation of Resonant Isolated DC/DC Converters for Future MVdc Railway Electrification Systems
17. A Looseness Detection Method for Railway Catenary Fasteners Based on Reinforcement Learning Refined Localization
18. Railway Panorama: A Fast Inspection Method for High-Speed Railway Infrastructure Monitoring
19. A High Accuracy and High Speed Imaging and Measurement System for Rail Corrugation Inspection
20. Automatic Detection and Monitoring System of Pantographâ€“Catenary in Chinaâ€™s High-Speed Railways
21. Risk Assessment for Electrified Railway Catenary System Under Comprehensive Influence of Geographical and Meteorological Factors
22. Modelling, Simulation and Code Generation for Electronic Railway Interlocking Systems
23. Research on Length Design and Dynamic Usage Strategy of Railway Successive Routes
24. Railway Alignment Optimization Considering Lifecycle Costs
25. Frequency-Scanning Harmonic Generator for (Inter)Harmonic Impedance Tests and Its Implementation in Actual 2 – 25 kV Railway Systems



# WIRELESS BASED IEEE 2021-2022

## PROJECTS LIST

1. Energy-Aware Routing for Software-Defined Multihop Wireless Sensor Networks
2. Broker-Based Nodes Recharging Scheme for Surveillance Wireless Rechargeable Sensor Networks
3. A Node Overhaul Scheme for Energy Efficient Clustering in Wireless Sensor Networks
4. Relay Node Placement in Wireless Sensor Networks: From Theory to Practice
5. DEKCS: A Dynamic Clustering Protocol to Prolong Underwater Sensor Networks
6. Robust Wireless Sensor Network Against Strong Electromagnetic Pulse
7. Reliable data storage in heterogeneous wireless sensor networks by jointly optimizing routing and storage node deployment
8. Energy-Efficient Node Deployment in Heterogeneous Two-Tier Wireless Sensor Networks With Limited Communication Range
9. Adaptive Body Area Networks Using Kinematics and Biosignals
10. Value of Information Based Sensor Ranking for Efficient Sensor Service Allocation in Service Oriented Wireless Sensor Networks
11. UAV-Enabled Data Collection for Wireless Sensor Networks with Distributed Beamforming
12. Distributed Vehicle Tracking in Wireless Sensor Network: A Fully Decentralized Multiagent Reinforcement Learning Approach
13. MicroSTARLING: A Millimeter Scale Self-Organizing Optical Communication Processor for Embedded Multihop Sensor and Computational Networks
14. Reinforcement Learning Framework for Delay Sensitive Energy Harvesting Wireless Sensor Networks
15. A New Topology Control Algorithm in Software Defined Wireless Rechargeable Sensor Networks

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16. Interference Prediction in Wireless Networks: Stochastic Geometry Meets Recursive Filtering
17. Recurrent Neural Network-Based Optimal Sensing Duty Cycle Control Method for Wireless Sensor Networks
18. Lifespan-balance-based Energy-efficient Routing for Rechargeable Wireless Sensor Networks
19. DORA: A Destination-Oriented Routing Algorithm for Energy-Balanced Wireless Sensor Networks
20. An Energy-Autonomous Wireless Sensor With Simultaneous Energy Harvesting and Ambient Light Sensing
21. J-RCA: A Joint Routing and Charging Algorithm With WCE Assisted Data Gathering in Wireless Rechargeable Sensor Networks
22. Node-Level Error Control Strategies for Prolonging the Lifetime of Wireless Sensor Networks
23. A Multi-objective Meta-heuristic Solution for Green Computing in Software-Defined Wireless Sensor Networks
24. Cascading Failures Analysis of Wireless Sensor Networks With Varying Routing Schemes
25. A PUF-based and cloud-assisted lightweight authentication for multi-hop body area network
26. A 70- $\mu$ W 1.35-mm<sup>2</sup> Wireless Sensor With 32 Channels of Resistive and Capacitive Sensors and Edge-Encoded PWM UWB Transceiver
27. Wireless Sensor Network for Tactical Situation Assessment
28. A hybrid fault-tolerant routing based on Gaussian network for wireless sensor network
29. Evaluation of the Quality of Aerial Links in Low-Power Wireless Sensor Networks
30. MCDP: Maximizing Cooperative Detection Probability for Barrier Coverage in Rechargeable Wireless Sensor Networks
31. Obstacle Handling Mechanism for Mobile Anchor Assisted Localization in Wireless Sensor Networks
32. Energy-Efficient Tour Optimization of Wireless Mobile Chargers for Rechargeable Sensor Networks

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33. Residual-Energy Aware Modeling and Analysis of Time-Varying Wireless Sensor Networks
34. Cooperative Topology Sensing of Wireless Networks With Distributed Sensors
35. Wireless Sensor Networks for Detection and Localization of Subsea Oil Leakages
36. A Comparative Analysis of Buffer Management Algorithms for Delay Tolerant Wireless Sensor Networks
37. Basketball Player On-Body Biophysical and Environmental Parameter Monitoring Based on Wireless Sensor Network Integration
38. A Novel Low-Power Time Synchronization Algorithm Based on a Fractional Approach for Wireless Body Area Networks
39. Battery-Less Wireless Chipless Sensor Tag for Subsoil Moisture Monitoring
40. An Intelligent Resource Allocation Scheme in Energy Harvesting Cognitive Wireless Sensor Networks
41. i-MAC: In-Body Sensor MAC in Wireless Body Area Networks for Healthcare IoT
42. Joint Data Collection and Fusion Using Mobile Sink in Heterogeneous Wireless Sensor Networks
43. Sensor-Cloud Architecture: A Taxonomy of Security Issues in Cloud-Assisted Sensor Networks
44. An Intelligent and Optimal Resource Allocation Approach in Sensor Networks for Smart Agri-IoT
45. Dynamic Sensor Speed Measurement Algorithm and Influencing Factors of Traffic Safety With Wireless Sensor Network Nodes and RFID
46. Obstacle-Aware Connectivity Establishment in Wireless Sensor Networks
47. Timestamp-Free Clock Parameters Tracking Using Extended Kalman Filtering in Wireless Sensor Networks
48. Virtual Network Embedding for Wireless Sensor Networks Time-Efficient QoS/QoI-Aware Approach
49. Multistep Prediction-Based Adaptive Dynamic Programming Sensor Scheduling Approach for Collaborative Target Tracking in Energy Harvesting Wireless Sensor Networks

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## IMAGE PROCESSING BASED IEEE 2021- 2022 PROJECTS LIST

SNO	TITLE
AG01	A Context-Based Image Contrast Enhancement Using Energy Equalization With Clipping Limit
AG02	A Deep Ordinal Distortion Estimation Approach for Distortion Rectification
AG03	A Framework for Hexagonal Image Processing Using Hexagonal Pixel-Perfect Approximations in Subpixel Resolution
AG04	A Supervised Segmentation Network for Hyperspectral Image Classification
AG05	Adaptive Deep Reinforcement Learning-Based In-Loop Filter for VVC
AG06	Adaptive Multiple Subtraction Based on an Accelerating Iterative Curvelet Thresholding Method
AG07	Adversarial Attack Against Deep Saliency Models Powered by Non-Redundant Priors
AG08	An Image Contrast Measure Based on Retinex Principles
AG09	Bayer CFA Pattern Compression With JPEG XS
AG10	Bayesian Low Rank Tensor Ring for Image Recovery
AG11	Better Compression With Deep Pre-Editing
AG12	Blind Deconvolution for Poissonian Blurred Image With Total Variation and L0-Norm Gradient Regularizations
AG13	Blind Image Quality Assessment With Active Inference
AG14	Blur Removal via Blurred-Noisy Image Pair
AG15	Boosting Single Image Super-Resolution Learnt From Implicit Multi-Image Prior
AG16	CDNet Complementary Depth Network for RGB-D Salient Object Detection
AG17	CGNet A Light-Weight Context Guided Network for Semantic Segmentation
AG18	Combining Progressive Rethinking and Collaborative Learning A Deep Framework for In-Loop Filtering

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AG19	Contour-Aware Loss Boundary-Aware Learning for Salient Object Segmentation
AG20	Cover-Lossless Robust Image Watermarking Against Geometric Deformations
AG21	Cross-Layer Feature Pyramid Network for Salient Object Detection
AG22	Cubemap-Based Perception-Driven Blind Quality Assessment for 360-degree Images
AG23	DanceIt Music-Inspired Dancing Video Synthesis
AG24	Deep Dehazing Network With Latent Ensembling Architecture and Adversarial Learning
AG25	Deep Likelihood Network for Image Restoration With Multiple Degradation Levels
AG26	Deep Outlier Handling for Image Deblurring
AG27	Deep Relation Embedding for Cross-Modal Retrieval
AG28	Deep Retinex Network for Single Image Dehazing
AG29	Deep SAR Imaging and Motion Compensation
AG30	Deep Shearlet Residual Learning Network for Single Image Super-Resolution
AG31	Deep-Learned Regularization and Proximal Operator for Image Compressive Sensing
AG32	Dense Attention Fluid Network for Salient Object Detection in Optical Remote Sensing Images
AG33	Depth-Quality-Aware Salient Object Detection
AG34	Different Input Resolutions and Arbitrary Output Resolution A Meta Learning-Based Deep Framework for Infrared and Visible Image Fusion
AG35	Digital Image Noise Estimation Using DWT Coefficients
AG36	Discriminative Feature Learning for Thorax Disease Classification in Chest X-ray Images
AG37	Distributed Learning and Inference With Compressed Images
AG38	Diversity Image Coding Using Irregular Interpolation
AG39	DPANet Depth Potentially-Aware Gated Attention Network for RGB-D Salient Object Detection
AG40	Dynamic Image Quantization Using Leaky Integrate-and-Fire Neurons
AG41	Effective Blind Image Deblurring Using Matrix-Variable

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Optimization	
AG42	Efficient Depth Intra Frame Coding in 3D-HEVC by Corner Points
AG43	Efficient Style-Corpus Constrained Learning for Photorealistic Style Transfer
AG44	Embarrassingly Simple Binarization for Deep Single Imagery Super-Resolution Networks
AG45	Embedding Perspective Analysis Into Multi-Column Convolutional Neural Network for Crowd Counting
AG46	EnAET A Self-Trained Framework for Semi-Supervised and Supervised Learning With Ensemble Transformations
AG47	End-to-End Learnt Image Compression via Non-Local Attention Optimization and Improved Context Modeling
AG48	Enhancement and Speedup of Photometric Compensation for Projectors by Reducing Inter-Pixel Coupling and Calibration Patterns
AG49	EnlightenGAN Deep Light Enhancement Without Paired Supervision
AG50	Evaluating the Stability of Spatial Keypoints via Cluster Core Correspondence Index
AG51	Exploit Camera Raw Data for Video Super-Resolution via Hidden Markov Model Inference
AG52	Fast and Robust Cascade Model for Multiple Degradation Single Image Super-Resolution
AG53	Fast Local Spatial Verification for Feature-Agnostic Large-Scale Image Retrieval
AG54	Fast Roughness Minimizing Image Restoration Under Mixed Poisson–Gaussian Noise
AG55	Geometrically Editable Face Image Translation With Adversarial Networks
AG56	Graph Regularized Flow Attention Network for Video Animal Counting From Drones
AG57	Harnessing Multi-View Perspective of Light Fields for Low-Light Imaging
AG58	HDR-GAN HDR Image Reconstruction From Multi-Exposed LDR Images With Large Motions

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AG59	Heavy-Tailed Self-Similarity Modeling for Single Image Super Resolution
AG60	Hierarchical Paired Channel Fusion Network for Street Scene Change Detection
AG61	Hyperspectral Image Super-Resolution via Deep Progressive Zero-Centric Residual Learning
AG62	Hyperspectral Texture Metrology Based on Joint Probability of Spectral and Spatial Distribution
AG63	Image Co-Skeletonization via Co-Segmentation
AG64	Image Restoration via Reconciliation of Group Sparsity and Low-Rank Models
AG65	Improved Multiple-Image Based Reflection Removal Algorithm Using Deep Neural Networks
AG66	Insights Into Algorithms for Separable Nonlinear Least Squares Problems
AG67	Interpretable Detail-Fidelity Attention Network for Single Image Super-Resolution
AG68	JCS An Explainable COVID-19 Diagnosis System by Joint Classification and Segmentation
AG69	Joint Local and Global Information Learning With Single Apex Frame Detection for Micro-Expression Recognition
AG70	Just Noticeable Distortion Profile Inference A Patch-Level Structural Visibility Learning Approach
AG71	Kalman Filter for Spatial-Temporal Regularized Correlation Filters
AG72	Layer-Output Guided Complementary Attention Learning for Image Defocus Blur Detection
AG73	Learnable Descriptors for Visual Search
AG74	Learning Complete and Discriminative Direction Pattern for Robust Palmprint Recognition
AG75	Learning Methodologies to Generate Kernel-Learning-Based Image Downscaler for Arbitrary Scaling Factors
AG76	Learning Spatial Attention for Face Super-Resolution
AG77	Learning Steering Kernels for Guided Depth Completion
AG78	Learning to Zoom-In via Learning to Zoom-Out Real-World Super-Resolution by Generating and Adapting Degradation
AG79	Learning Wavefront Coding for Extended Depth of Field Imaging
AG80	Light Field Image Super-Resolution Using Deformable

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	Convolution
AG81	Light Field Super-Resolution via Adaptive Feature Remixing
AG82	Light Field View Synthesis via Aperture Disparity and Warping Confidence Map
AG83	Looking for the Detail and Context Devils High-Resolution Salient Object Detection
AG84	Low-Rank Constrained Super-Resolution for Mixed-Resolution Multiview Video
AG85	Multi-Dimensional Visual Data Completion via Low-Rank Tensor Representation Under Coupled Transform
AG86	Multi-Domain Image-to-Image Translation via a Unified Circular Framework
AG87	Multi-Interactive Dual-Decoder for RGB-Thermal Salient Object Detection
AG88	Multi-Stage Degradation Homogenization for Super-Resolution of Face Images with Extreme Degradations
AG89	Multi-Task Deep Learning for Image Segmentation Using Recursive Approximation Tasks
AG90	Multi-View Gait Image Generation for Cross-View Gait Recognition
AG91	Multi-View Mouse Social Behaviour Recognition With Deep Graphic Model
AG92	On Plug-and-Play Regularization Using Linear Denoisers
AG93	One-Class Fingerprint Presentation Attack Detection Using Auto-Encoder Network
AG94	Panoptic Feature Fusion Net A Novel Instance Segmentation Paradigm for Biomedical and Biological Images
AG95	Patch-Based Dual-Tree Complex Wavelet Transform for Kinship Recognition
AG96	Pixel-Wise Wasserstein Autoencoder for Highly Generative Dehazing
AG97	Plant Disease Recognition A Large-Scale Benchmark Dataset and a Visual Region and Loss Reweighting Approach
AG98	Principled Design and Implementation of Steerable Detectors
AG99	Progressive Transfer Learning for Face Anti-Spoofing
AG100	ProxIQA A Proxy Approach to Perceptual Optimization of Learned Image Compression

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AG101	Push for Center Learning via Orthogonalization and Subspace Masking for Person Re-Identification
AG102	Quality Assessment of Free-Viewpoint Videos by Quantifying the Elastic Changes of Multi-Scale Motion Trajectories
AG103	Quantization Parameter Cascading for Surveillance Video Coding Considering All Inter Reference Frames
AG104	RefineDNet A Weakly Supervised Refinement Framework for Single Image Dehazing
AG105	Removing Adversarial Noise via Low-rank Completion of High-sensitivity Points
AG106	Rethinking Shape From Shading for Spoofing Detection
AG107	Reversible Data Hiding Based on Dual Pairwise Prediction-Error Expansion
AG108	Revisiting Shadow Detection A New Benchmark Dataset for Complex World
AG109	Robust 3D Reconstruction of Dynamic Scenes From Single-Photon Lidar Using Beta-Divergences
AG110	Robust Content-Adaptive Global Registration for Multimodal Retinal Images Using Weakly Supervised Deep-Learning Framework
AG111	Robust Segmentation-Free Algorithm for Homogeneity Quantification in Images
AG112	Robust Subspace Detectors Based on Divergence With Application to Detection in Imaging
AG113	SAMNet Stereoscopically Attentive Multi-Scale Network for Lightweight Salient Object Detection
AG114	SDP-GAN Saliency Detail Preservation Generative Adversarial Networks for High Perceptual Quality Style Transfer
AG115	Self-Supervised Colorization Towards Monochrome-Color Camera Systems Using Cycle CNN
AG116	Semantic Perceptual Image Compression With a Laplacian Pyramid of Convolutional Networks
AG117	Shadow Removal by a Lightness-Guided Network With Training on Unpaired Data
AG118	Simultaneous Direct Depth Estimation and Synthesis Stereo for Single Image Plant Root Reconstruction
AG119	Single Image Dehazing via Dual-Path Recurrent Network
AG120	Single-Image Real-Time Rain Removal Based on Depth-Guided

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Non-Local Features	
AG121	Sparse Gradient Regularized Deep Retinex Network for Robust Low-Light Image Enhancement
AG122	SRGAT Single Image Super-Resolution With Graph Attention Network
AG123	Structural Knowledge Distillation for Efficient Skeleton-Based Action Recognition
AG124	Superpixel-Based Quality Assessment of Multi-Exposure Image Fusion for Both Static and Dynamic Scenes
AG125	The Role of Redundant Bases and Shrinkage Functions in Image Denoising
AG126	TJU-DHD A Diverse High-Resolution Dataset for Object Detection
AG127	Toward Visual Distortion in Black-Box Attacks
AG128	Towards Cross-Dataset Palmprint Recognition via Joint Pixel and Feature Alignment
AG129	Triply Complementary Priors for Image Restoration
AG130	Ultra High Fidelity Deep Image Decompression With Constrained Compression
AG131	Underwater Image Enhancement via Medium Transmission-Guided Multi-Color Space Embedding
AG132	Video Moment Localization via Deep Cross-Modal Hashing
AG133	Visible-NIR Image Fusion Based on Top-Hat Transform
AG134	VolumeNet A Lightweight Parallel Network for Super-Resolution of MR and CT Volumetric Data
AG135	VR Sickness Versus VR Presence A Statistical Prediction Model
AG136	Weakly-Supervised Salient Object Detection With Saliency Bounding Boxes
AG137	Weighted Feature Histogram of Multi-Scale Local Patch Using Multi-Bit Binary Descriptor for Face Recognition

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# NLP BASED IEEE 2021-2022 PROJECTS

## LIST

1. Privacy-Preserving Deep Learning NLP Models for Cancer Registries
2. The NLP Cookbook: Modern Recipes for Transformer Based Deep Learning Architectures
3. Machine Learning Techniques for Biomedical Natural Language Processing: A Comprehensive Review
4. MGRC: An End-to-End Multigranularity Reading Comprehension Model for Question Answering
5. Search-Based Algorithm With Scatter Search Strategy for Automated Test Case Generation of NLP Toolkit
6. Conditional Sentence Generation and Cross-modal Reranking for Sign Language Translation
7. CaPBug-A Framework for Automatic Bug Categorization and Prioritization Using NLP and Machine Learning Algorithms
8. A Comparative NLP-Based Study on the Current Trends and Future Directions in COVID-19 Research
9. Automated Metric Analysis of Spanish Poetry: Two Complementary Approaches
10. Text Compression-aided Transformer Encoding
11. DiLBERT: Cheap Embeddings for Disease Related Medical NLP
12. Sentiment Analysis of Lockdown in India During COVID-19: A Case Study on Twitter
13. Attention Flows: Analyzing and Comparing Attention Mechanisms in Language Models
14. A Novel Approach for Linguistic Steganography Evaluation Based on Artificial Neural Networks
15. Analytical Techniques for Developing Argumentative Writing in STEM: A Pilot Study

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- 16.Leveraging DistilBERT for Summarizing Arabic Text: An Extractive Dual-Stage Approach
- 17.RODA: Reverse Operation based Data Augmentation for Solving Math Word Problems
- 18.On Social Network De-anonymization with Communities: A Maximum A Posteriori Perspective
- 19.Deep Learning-based Hardware Trojan Detection with Block-based Netlist Information Extraction
- 20.Analysis of Public Sentiment on COVID-19 Vaccination Using Twitter
- 21.User Stories and Natural Language Processing: A Systematic Literature Review
- 22.Exploring Automated GDPR-Compliance in Requirements Engineering: A Systematic Mapping Study
- 23.Text and Dynamic Network Analysis for Measuring Technological Convergence: A Case Study on Defense Patent Data
- 24.Optimizing Attention for Sequence Modeling via Reinforcement Learning
- 25.Multi-Label Sentiment Analysis on 100 Languages With Dynamic Weighting for Label Imbalance
- 26.An OCR Post-correction Approach using Deep Learning for Processing Medical Reports
- 27.Multilabel Emotion Tagging for Domain-Specific Texts
- 28.Nonautoregressive Encoder-Decoder Neural Framework for End-to-End Aspect-Based Sentiment Triplet Extraction
- 29.DiffTech: Differencing Similar Technologies from Crowd-Scale Comparison Discussions
- 30.Hierarchical-Task Reservoir for Online Semantic Analysis From Continuous Speech
- 31.Emotional Conversation Generation With Bilingual Interactive Decoding
- 32.Fast Energy-Optimal Multi-Kernel DNN-like Application Allocation on Multi-FPGA Platforms
- 33.Dynamic Embedding Projection-Gated Convolutional Neural Networks for Text Classification

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34. Application of Quantum Natural Language Processing for Language Translation
35. AltibbiVec: A Word Embedding Model for Medical and Health Applications in the Arabic Language
36. SECRET: Semantically Enhanced Classification of Real-World Tasks
37. A Method for Generating Synthetic Electronic Medical Record Text
38. Knowledge Enhanced Fact Checking and Verification
39. PROTOTYPE-TO-STYLE: Dialogue Generation With Style-Aware Editing on Retrieval Memory
40. Machine Reading Comprehension Framework Based on Self-Training for Domain Adaptation
41. Systematic Literature Review of Dialectal Arabic: Identification and Detection
42. A Heuristic Grafting Strategy for Manufacturing Knowledge Graph Extending and Completion Based on Nature Language Processing: KnowTree
43. ECF-MRS: An Efficient and Collaborative Framework With Markov-Based Reputation Scheme for IDSs in Vehicular Networks
44. Semantic Change Detection With Gaussian Word Embeddings
45. A Comparative Study of Opinion Summarization Techniques
46. Classical Arabic Named Entity Recognition Using Variant Deep Neural Network Architectures and BERT
47. SEthesaurus: WordNet in Software Engineering
48. Complicating the Social Networks for Better Storytelling: An Empirical Study of Chinese Historical Text and Novel
49. Semantic Similarity Computing Model Based on Multi Model Fine-Grained Nonlinear Fusion
50. Network-Level Optimization for Unbalanced Power Distribution System: Approximation and Relaxation

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# BLOCK CHAIN BASED IEEE 2021-2022

## PROJECTS LIST

1. A Block Chain based Management System for Detecting Counterfeit Product in Supply Chain
2. Research on Anti-tampering Simulation Algorithm of Block Chain-based Supply Chain Financial Big Data
3. Block-chain Technology for Food supply chains
4. Block chain Technology in Agriculture Product Supply Chain
5. Digital Support of Forensic Laboratories under Optimized Block Chain Network
6. Pharmaceutical anti-counterfeiting traceability system based on block chain double chain
7. Efficient Maintenance of Hospital Records by Entrusted Proof of Venture Algorithm In Block Chain Technology
8. An advanced approach for Smart Parking Solution Based on Ethereum Block chain System
9. VCG Auction Mechanism based on Block Chain in Smart Grid
10. C3HSB: A Transparent Supply Chain for Multi-cloud and Hybrid Cloud Assets Powered by Blockchain
11. Decentralized Application for managing the Disaster with Block chain, Cloud & IOT
12. The Proposed of a Smart Traceability System for Teak Supply Chain Based on Blockchain Technology
13. Research on data storage model of household electrical appliances supply chain traceability system based on blockchain
14. Block Chaining in Finance and Accounting
15. Equipment Data Sharing Method Based on Block chain
16. Block Chain + Accounting: Applications, Challenges and Countermeasures Research
17. Research and Development of a Smart Contract Algorithm for the Implementation of Block-chain Technology on Mobile Devices
18. A Sustainable Energy-Tailored Transaction Mechanism for Smart Grids Based on Block Chains
19. Chain of Digital Data Blocks Linked by a Numeric Linear Block Correction Code, as an Alternative to the Blockchain Technology

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20. Application of Block-chain Technology in Enterprise Capital Supervision
21. Satisfied Matching-Embedded Social Internet of Things for Content Preference-Aware Resource Allocation in D2D Underlaying Cellular Networks
22. Constructions of Z-optimal Type-II Quadriphase Z-complementary Pairs
23. Secure and Scalable Decentralized Supply Chain Management Using Ethereum and IPFS Platform
24. Method of Reaching Consensus on Probability of Food Safety Based on the Integration of Finite Credible Data on Block Chain
25. Research on Technical Innovation of Emergency Supply Chain Management Based on Blockchain Technology
26. The Dilemma and New Development Strategy of Sharing Economy â€” Based on the Perspective of Block Chain Technology
27. Blockchain Applications in various sectors beyond:Bitcoin
28. Research on the method of improving community governance capability based on block-chain technology
29. Forensic Block Chain and it's linkage with Artificial Intelligence: A new Approach
30. Cipher Block Chaining Support Vector Machine for Secured Decentralized Cloud Enabled Intelligent IoT Architecture
31. Impact of AMR-WB Codec on VoLTE Call Blocking in Cellular LTE Network
32. A Hybrid Chain and A Double-Tuple Variable Bulk Arrival and Static Bulk Service Model
33. Analysis of Block Chain Technology Applying in Digital Archives
34. Agro Chain - The Life of Wealth in Agriculture
35. Secured Health Using Machine Learning Adoption In Blockchain
36. Closed-Form AOL Analysis for Dual-Queue Short-Block Transmission with Block Error
37. Block Access Control in Wireless Blockchain Network: Design, Modeling and Analysis
38. Impact of Modulation and Coding Schemes on VoLTE Call Blocking in Cellular LTE Network
39. Smart Watering System using Fuzzy Logic
40. A Block Chain Platform with Equipment ID for Industrial Internet
41. Implementation of SHA 256 using MATLAB and on FPGA by the Application of Block Chain Concepts
42. Effective Security Mechanisms for Big Data Using Block Chain Technology

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43. Design of Interactive and Intelligent Electrical Heating Service Management Platform

44. Block Chain Based Cognitive Wireless Networks: Challenges & Applications

45. The Block Propagation in Blockchain-based Vehicular Networks

