

Third International Conference on Internet of Things (ICIOT 2022)

5 - 7 April, 2022

**ORGANIZED BY
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
FACULTY OF ENGINEERING AND TECHNOLOGY
SCHOOL OF COMPUTING**

Third International Conference on Internet of Things (ICIOT 2022)

5 – 7 April, 2022

Organized by
SRM INSTITUTE OF SCIENCE AND TECHNOLOGY
Faculty of Engineering and Technology
School of Computing

CONFERENCE THEME AND OBJECTIVES

The School of Computing, SRM Institute of Science and Technology, Chennai, India conducted the 3rd edition of International Conference on Internet of Things (ICIOT 2022) from April 5th to 7th, 2022 in the Kattankulathur campus, Chennai.

The conference aimed to provide an outstanding opportunity for both academic and industrial communities to address new trends and challenges in emerging technologies and progress in standards on topics relevant to today's fast-moving technology trends in to the Internet of Things. It also provided a platform for the discussion of new results in the field of Internet of things. Different themes are addressed on each day and each theme contains different thought-provoking sessions.

The first day sessions were meant to focus on application of IoT in the field of Computer Science and Information Technology. On the second day Startups and Entrepreneurs shared their success stories and experiences in implementing IoT and few sessions were focused on Industrial IoT. Government initiatives like Digital India, Smart Cities, where top bureaucrats from various departments were planned on the themes during the last day of the Conference. Researchers, Faculty, Students and Practitioners were presented their findings and ideas during the Paper presentation session on all the three days.

We have received 256 papers including authors from countries like Australia, Turkey, Lithuania, and Saudi Arabia. The conference is inaugurated on 5th April 2022 with the dignitaries from SRM IST, DST, DRDO, Australia, USA, Canada, Singapore, and Ireland.

Inauguration Function

Day 1 05-04-2022

The Conference started with Tamil Thai Valthu & Lightening Kuthuvilakku at 9.30 AM. followed by welcome address by Dr.Revathai Venkataraman, Chairperson, School of Computing. Dr.G.Maragatham, Associate Professor, Computing Intelligence gave brief introduction about the conference. Dr.T.V.Gopal, Dean, College of Engineering and Technology delivered presidential address. Dr. Sivaji Chandaram, Director, Ministry of Science and Technology, Government of India & Mr.Shailesh R Chansarkar, Scientist, DRDO delivered their special addresses.Dr T.V Gopal released the conference proceedings which was received by Mr. Shailesh R Chansarkar. The inaugural function was concluded with a note of thanks by Dr.M.Pushpalatha, HOD, Computing Technologies and wishes for great success of the conference.



Expert Members On the Dias



Chief Guest Inaugurating Conference



Welcome Address - Dr.Revathai Venkataraman



Conference Introduction - Dr.G.Maragatham



Presidential Address - Dr.T.V.Gopal



Special Address - Dr. Sivaji Chandaram



Special Address - Mr.Shailesh R Chansarkar



Releasing the conference proceedings



Note of Thanks - Dr.M.Pushpalatha



Audience

KEYNOTE Address:

Speaker :Dr.Chandaram Sivaji, Department of Science and Technology

Key Point:

- Prof. Chandaram Sivaji, appreciated the audience regarding the funding opportunities provided by DST and the focus area. Highlighted SERB Women's Excellence Award. Pointed the list of projects available in DST & Technology Mission Program. Elaborated Ancient Indian Scientific Contributions. Shared his idea to write & apply for the research proposal.



Introduction - Key Note Speaker



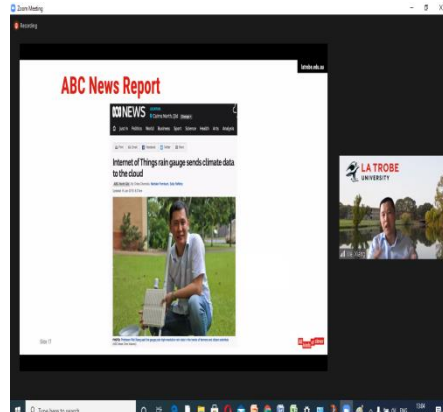
Lecture - Prof. Chandaram Sivaji

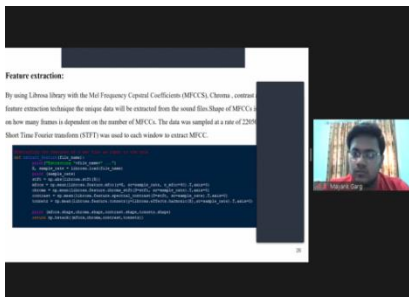

Topics Discussed:

1. National Post Doctoral Fellowship
2. SERB Overseas Postdoctoral Fellowship
3. SERB POWER
4. Promoting Opportunities for Women in Exploratory Research
5. SERB – POWER Fellowship
6. SERB – POWER Research Grants
7. SERB Women Excellence Award
8. DST- Women Scientists Programs
 1. Women Scientist Scheme-A(WOS-A): Research in Basic/Applied Science
 2. Women Scientist Scheme-B (WOS-B): S&T interventions for Societal Benefit
 3. Women Scientist Scheme-C (WOS-C): Internship in Intellectual Property Rights (IPRs)
9. Ramanujan Fellowship
10. TEACHERS ASSOCIATESHIP FOR RESEARCH EXCELLENCE

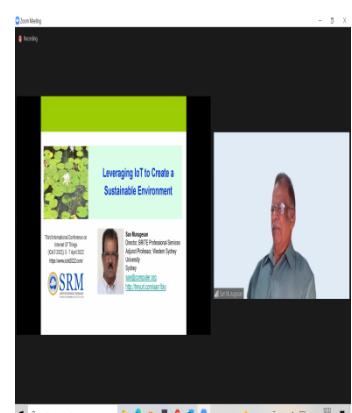
Under each topic, Professor discussed about the Objective, Eligibility Criteria, Nature & Duration of Support & Selection and mode of Application.

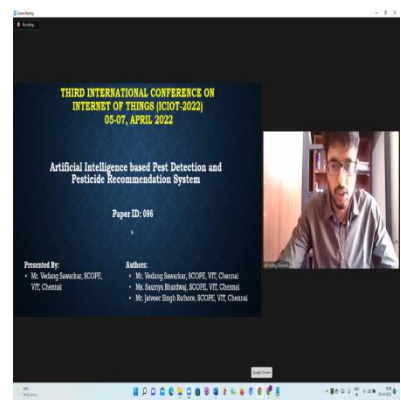
TRACK 1

Invited Talk Timing 12.30 PM -1.30 PM		
Key Note Speaker: Prof. Wei Xiang , Director of Cisco-La Trobe Centre for AI and Internet of Things	Title Presented: Integration of AI and Machine learning	
Key Points: <ul style="list-style-type: none">✓ Data Acquisition✓ Data Communication&Data Analytics✓ AI+IOT for every vertical Industry✓ AIOT based Predictive maintain for Australia turntables✓ The future perspective i.e Advanced manufacturing in industry		

Presentation Session Timing 1.45 PM -3.00 PM		
Track In-charge	Dr.R.Vidhya	
Session Chair	Dr. G. Niranjana	
Session Co-Chair	Dr.S.Ramamoorthy	
No. of Paper Selected	8	
No. of Paper Presented	8	
No. of outside participants	5	
No. of SRMIST Participants	3	
No. of International Participants	-	
No. of Research Scholars	2	
No. of Faculties	-	
No. of Students	6	
Best Paper Award Title	A Comparative Study of Feature Selection Approach for a Credit Card Fraud Dataset	
Best Paper Award Received By	Mr.Bharat Kumar Padhi Centurion University of Technology & Management, Odisha, India	

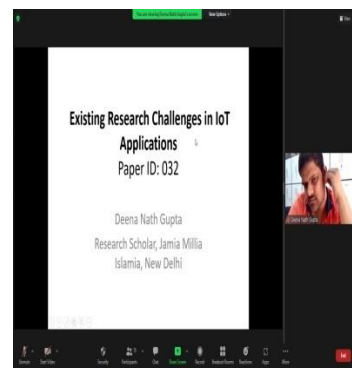
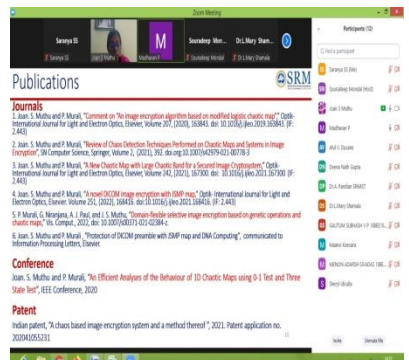
TRACK 2

Invited Talk Timing 12.30 PM -1.30 PM		
Key Note Speaker: Prof.San Murugesan , The director of BRITE Professional Services, adjunct professor at Western Sydney University, Australia	Title Presented: Leveraging IOT to create a sustainable Environment	
Key Points: <ul style="list-style-type: none">✓ How climate changes affect our lives and how IoT is used in handling climatic changes.✓ The digital twin and how IoT is used in various other fields of research.		

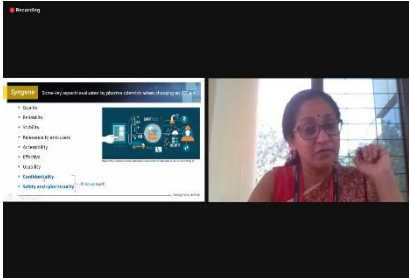
Presentation Session Timing 1.45 PM -3.00 PM		
Track In charge	Mrs.B.Ida Seraphim	
Session Chair	Dr. R. Jebakumar	
Session Co-Chair	Dr.S.Babu	
No. of Paper Selected	8	
No. of Paper Presented	8	
No. of outside participants	5	
No. of SRMIST Participants	3	
No. of International Participants	-	
No. of Research Scholars	1	
No. of Faculties	2	
No. of Students	5	
Best Paper Award Title	Artificial Intelligence based Pest Detection and Pesticide Recommendation System	
Best Paper Award Received By	Mr. VedangSawarkar Vellore Institute of Technology (VIT), Chennai.	




TRACK 3


Presentation Session Timing 1.45 PM -3.00 PM		
Track Incharge	Dr C. Vijayakumaran& MS. S.S. Saranya	 
Session Chair	Dr.A.Pandian	
Session Co-Chair	Dr. P. Madhavan	
No. of Paper Selected	8	
No. of Paper Presented	8	
No. of outside participants	4	
No. of SRMIST Participants	4	
No. of International Participants	-	
No. of Research Scholars	2	
No. of Faculties	2	
No. of Students	4	
Best Paper Award Title	IoT Mapper	
Best Paper Award Received By	Mr. SouradeepMondal, SRM Institute of Science and Technology Kattankukathur,	

TRACK 4


Invited Talk Timing 12.30 PM -1.30 PM			
Key Note :Dr.AparnaKasinath	Speaker	Title Presented : Pharma and IOT: how these two dissolve filling connection?	
Key Points:			
<ul style="list-style-type: none">✓ How to integrate the Drug Discovery, Development and Manufacturing service provider.✓ Collaborations and partnerships to deliver numerous clinical candidates.			

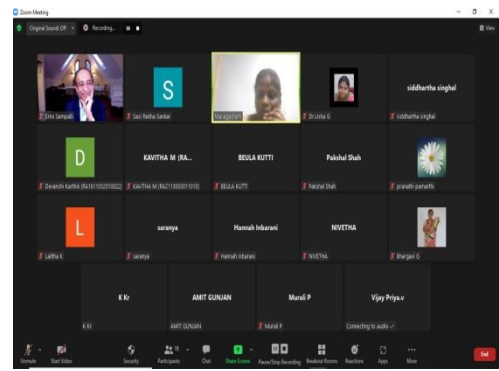
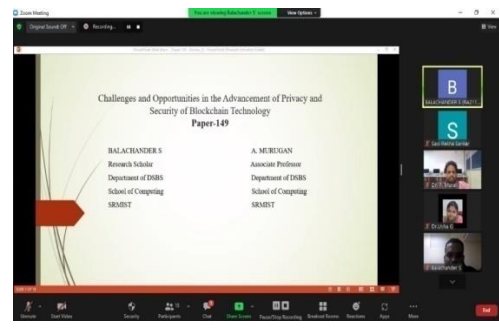
Presentation Session Timing 1.45 PM -3.00 PM			
Track Incharge	Dr. K. R. Jansi Dr. G. K. Sandhia		
Session Chair	Dr. SubalalithaC.N		
Session Co-Chair	Dr. KayalvizhiJayavel		
No. of Paper Selected	08		
No. of Paper Presented	08		
No. of outside participants	05		
No. of SRMIST Participants	03		
No. of International Participants	01		
No. of Research Scholars	-		
No. of Faculties	03		
No. of Students	04		
Best Paper Award Title	Industry 4.0 Inspired Robotic Assistive System for Anomaly Detection in Machinery Parts		
Best Paper Award Received By	Mr. A. Prasad, Ms. Sruthi Srinivasan, Mr. VedangSawarkar Vellore Institute of Technology (VIT), Vandalur-Kelambakkam Road		





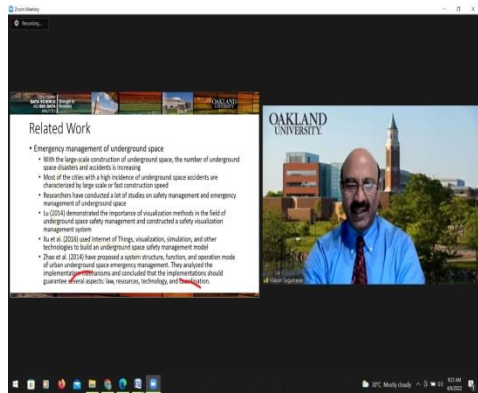
TRACK 5

Invited Talk Timing 12.30 PM -1.30 PM		
Key Note Speaker : SriniSampalli, PhD. Professor and 3M National, Teaching Fellow, Faculty of Computer Science Dalhousie University, Halifax, NS B3H 1W5 CANADA	Title Presented : How IoT can shape the Future of Healthcare: Potential and Challenges	
Key Points: <ul style="list-style-type: none"> ✓ The integration of emerging wireless technologies ✓ IoT with Healthcare ✓ Highlighted the challenges - security and privacy issues. ✓ Research projects 		

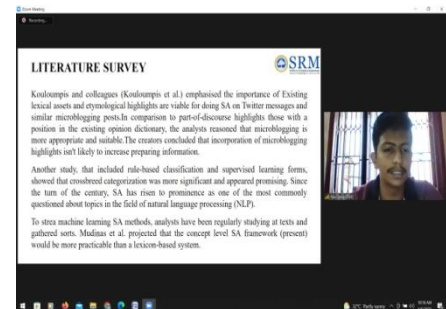
Presentation Session Timing 1.45 PM -3.00 PM		
Track Incharge	Mrs.Sasirekha	
Session Chair	Dr. G. Usha	
Session Co-Chair	Dr. P. Murali	
No. of Paper Selected	8	
No. of Paper Presented	8	
No. of outside participants	7	
No. of SRMIST Participants	1	
No. of International Participants	-	
No. of Research Scholars	1	
No. of Faculties	-	
No. of Students	7	
Best Paper Award Title	Identification of landslide vulnerable zone in Western Ghats using various image processing techniques and machine learning techniques	
Best Paper Award Received By	Mrs. Bhargavi G - Research scholar - SRMIST –VDP	

DAY 2 - 06.04.2022


TRACK 6

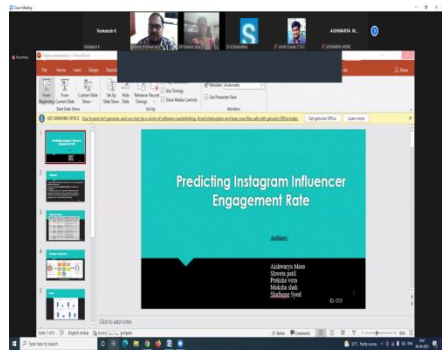

Invited Talk Timing 9.00 AM – 10.00 AM	
Key Note Speaker : Prof. Vijayan Sugumaran, Distinguished Professor, Management Information Systems, Rochester, Michigan, USA	Title Presented : Integrating Mixed Reality and Artificial Intelligence into Building Information Modeling: A Collaborative Tunnel Emergency Drill Management System
Key Points: <ul style="list-style-type: none"> ✓ Rapid development of smart cities ✓ Effective management of urban tunnels places higher requirements on the emergency response capabilities of operations and maintenance personnel. ✓ Traditional approaches for conducting emergency drills do not meet the requirements of collaborative response in complex emergency scenarios 	

Presentation Session Timing 10.15 AM -11.30 AM	
Track In-charge	Mr.M.Arulprakash
Session Chair	Dr.M.Thenmozhi
Session Co-Chair	Dr.Naresh
No. of Paper Selected	7
No. of Paper Presented	6
No. of outside participants	2
No. of SRMIST Participants	4
No. of International Participants	-
No. of Research Scholars	1
No. of Faculties	2
No. of Students	3
Best Paper Award Title	SMART VISOR
Best Paper Award Received By	Mr. Madurya ,Mr.Amish Agarwal SRMIST, Kattankulathur.




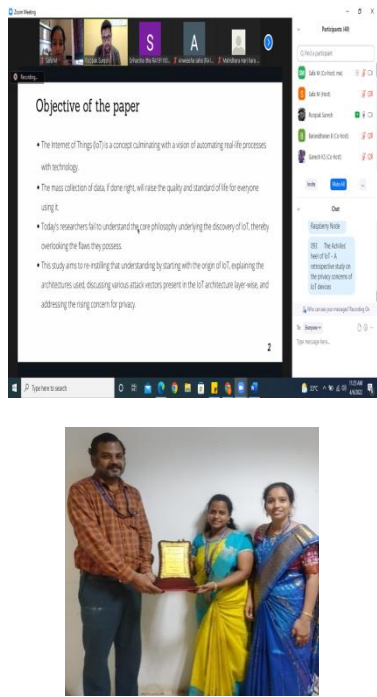
TRACK 7

Invited Talk Timing 9.00 AM – 10.00AM		
Key Note Speaker : Prof. Atreyi Kankanhalli, Provost's Chair Professor, Dept. of Information Systems and Analytics, National University of Singapore	Title Presented : PERVASIVE HEALTHCARE, WEARABLES, GAMIFICATION & PERSONALIZATION	
Key Points: <ul style="list-style-type: none"> ✓ Health care products ✓ Security issues ✓ Ongoing Research work 		

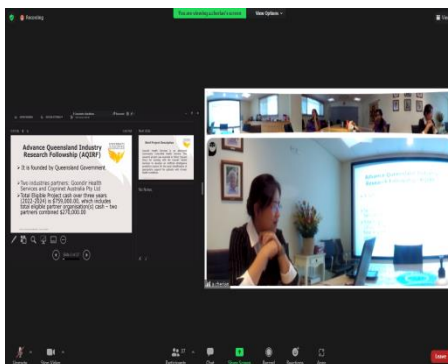
Presentation Session Timing 10.15 AM -11.30 AM		
Track Incharge	Dr.K.Venkatesh	
Session Chair	Dr.M.B. Mukesh Krishnan	
Session Co-Chair	Dr.C.N.S. Vinoth Kumar	
No. of Paper Selected	7	
No. of Paper Presented	7	
No. of outside participants	7	
No. of SRMIST Participants	-	
No. of International Participants	-	
No. of Research Scholars	-	
No. of Faculties	1	
No. of Students	6	
Best Paper Award Title	Energy Efficiency and Throughput maximization for 5G Green IoT Networks using Ambient Backscatter Communication	
Best Paper Award Received By	Mr. Pradip S. Varade College: SCTR's Pune Institute of Computer Technology, Pune	

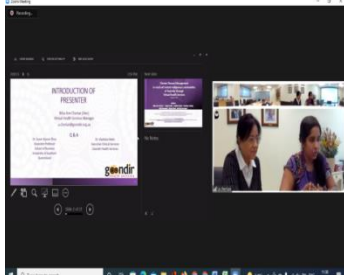

TRACK 8

Invited Talk Timing 9.00 AM – 10.00AM		
Key Note Speaker: Prof.Raj Gururaj, Professor, University of Southern Queensland, Australia	Title Presented: Opportunities in IoT and its alignment with Curriculum: Drivers, Barriers, Dilemmas and Solutions	
Key Points: ✓ The business opportunities in IoT and its alignment curriculum. ✓ The latest advancement of IoT in various fields		

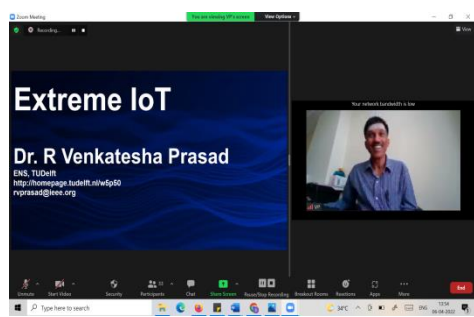
Presentation Session Timing 10.15 AM -11.30 AM		
Track Incharge	Ms. Safa, Mrs. Nithyakani P	
Session Chair	Dr.B.Baranidharan	
Session Co-Chair	Dr. S.Ganesh Kumar	
No. of Paper Selected	8	
No. of Paper Presented	8	
No. of outside participants	7	
No. of SRMIST Participants	1	
No. of International Participants	1	
No. of Research Scholars	-	
No. of Faculties	5	
No. of Students	3	
Best Paper Award Title	IoT Data Stream Using Ontology	
Best Paper Award Received By	Dr. Mervin Retnadhas, Assistant Professor College: Saudi Electronic University, Riyadh, Saudi Arabia	

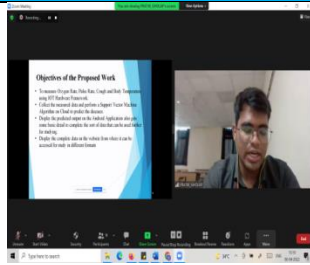

TRACK 9

Invited Talk Timing 9.00 AM – 10.00AM		
Key Note Speaker: Dr. Susan Xujuan Zhou, Professor, University of Southern Queensland, Australia	Title Presented: Early detection of chronic health conditions using AI prediction models	
Key Points: <ul style="list-style-type: none">✓ The methodology of dataset extraction phase✓ Explained about the ensemble Models which are used for prediction✓ Highlighted research projects and current challenges in the research field		

Presentation Session Timing 10.15 AM -11.30 AM		
Track In-charge	Ms.K.Meenakshi&Ms. Viji D	
Session Chair	Dr.K.Kottilingam	
Session Co-Chair	Dr.N. Parthiban	
No. of Paper Selected	8	
No. of Paper Presented	7	
No. of outside participants	5	
No. of SRMIST Participants	2	
No. of International Participants	1	
No. of Research Scholars	-	
No. of Faculties	1	
No. of Students	6	
Best Paper Award Title	Chronic Disease Management in rural and remote Indigenous communities of Australia through Virtual Health Services	
Best Paper Award Received By	Ms. Bittu Ann Cherian Industry +university collaboration:Virtual Health Services ManagerGoondir Health ServicesUniversity of southern Queensland, Australia	

TRACK 10

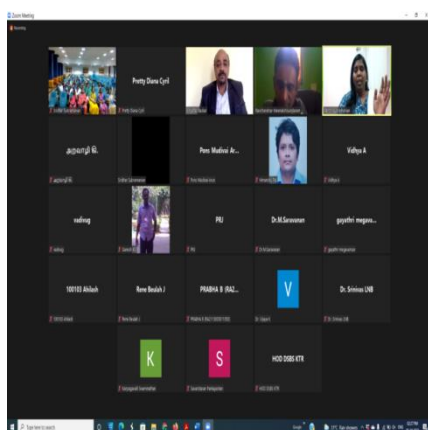
Invited Talk Timing 9.00 AM – 10.00AM		
Key Note Speaker : Dr.Ranga Rao Venkatesha Prasad, Professor, IEEE Distinguished Lecturer, Fellow IETE, Delft University of Technology, Netherlands	Title Presented : Extreme IOT	
Key Points: <ul style="list-style-type: none"> ✓ How IOT helps in creating robotic arm with cost efficiency. ✓ Talk about the humming bird project working area of Speaker ✓ How IoT is used in various other fields of his research. 		

Presentation Session Timing 10.15 AM -11.30 AM		
Track Incharge	Mrs.B.Sowmiya	
Session Chair	Dr. Madan Kumar Lakshmanan	
Session Co-Chair	Dr. M. Prakash	
No. of Paper Selected	8	
No. of Paper Presented	5	
No. of outside participants	4	
No. of SRMIST Participants	1	
No. of International Participants	-	
No. of Research Scholars	-	
No. of Faculties	2	
No. of Students	3	
Best Paper Award Title	Enhanced hybrid optimization technique to find optimal solutions for task scheduling in cloud-fog computing environments	
Best Paper Award Received By	Ms. Anjali Patle College: National Institute of Technology Raipur	

Panel Discussion - Impact of IoT on Human Life

Date & Time: 6th April 2022 – 2.00 PM – 4.00 PM

Expert Name	Designation, Company	Theme / Topic
Dr. Baskaran Kesavan	Founder &CEO Kriyatec IT Systems Pvt Ltd	Moderator
Mr. Pons Mudivai Arun	Director of Products (Cyber Security), Citrix	Implication of insecure IoT devices to Human life
Mr. M.Ravichandran	Founder &CEO, Terafast Networks	IoT applications in Smart city and Office management
Ms. Panchi Subramanian	Founder and Managing Director – YesPanchi Tech Services Private Limited	IoT applications and challenges in Financial sector.



Panel Discussion - Expert Members



Delivering Lecture – Expert Members



Audience Question & Answer Session



Audience Discussion

Key Points:

Dr. Baskaran Kesavan, the Moderator has elaborated about the importance of IoT and its impact on human life. He invited the Panel experts for discussion towards the New technologies, Future Trends and the relevance of IoT in Indian context. The first session is about the Actuals of IoT in both world and Indian context. The second session is about Relevance of IoT in Indian context and the third session is about Future trends and Opportunities of IoT.

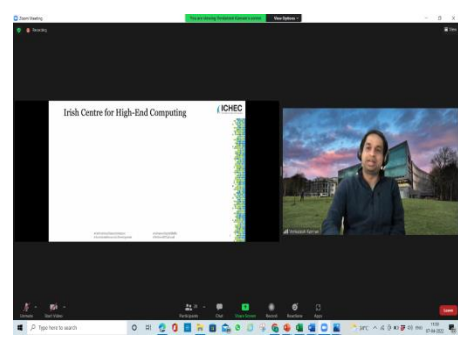
Mr. M.Ravichandran spoke about the role of IoT in implementing Smart City Projects including Smart street lights, smart waste management, Smart Metering and Smart Grid and Intelligent Public Transport. He has briefed about Office management using IoT and also about reduction of electricity bills and smart Bin checking using IoT sensors as opportunities of IoT.

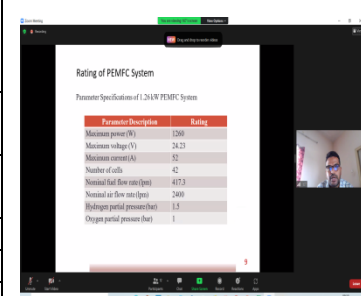
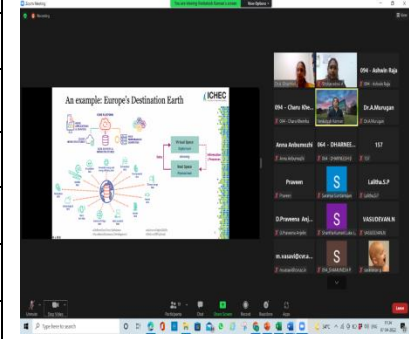
Mr. Pons Mudivai Arun gave his views on IoT based Security breaches and vulnerabilities on a global context. He added that the problem is due to the ignorance of fundamentals. In the second session, he said about the security add-ons that are needed for critical gadgets used in health care like pace maker machines. He then quoted volume of data is an important feature to look for as opportunities of IoT.

Ms. Panchi Subramanian listed the use cases in Payment system in a global context with an example of interconnecting an IoT device with Gmail so as to access account balance and mini statement etc through google assistant. In the second session, she mentioned the Banking use cases in Indian context, say placing an IoT board between customer and cashier to alert Bank manager about any abnormality. In the third session, she explained about the opportunities of using IoT devices in Petrol bunks, Automatic Printer cartridge filling, Refrigerators and payments.

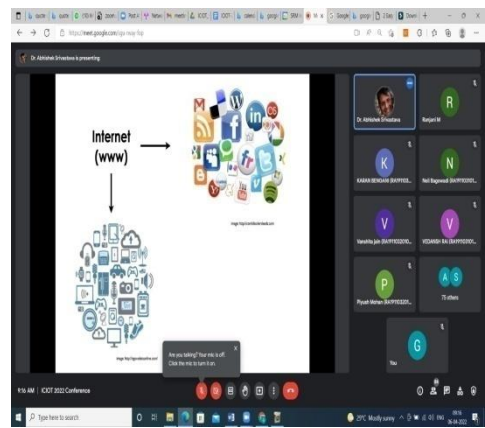
Day 3 07-04-2022

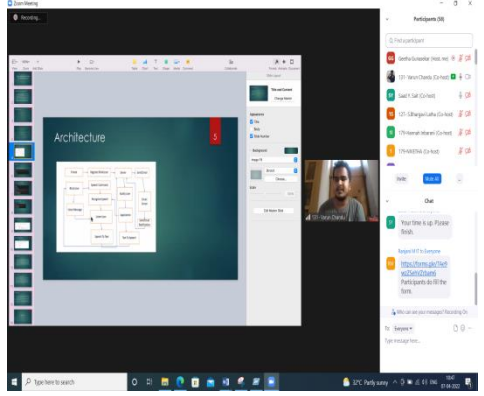
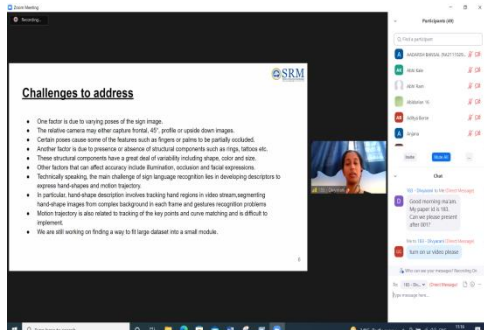
TRACK 11

Invited Talk Timing 9.00 AM – 10.00AM		
Key Note Speaker : Dr. Venkatesh Kannan Technical Manager at the Irish Centre of High-End Computing (ICHEC), the national centre for high-performance computing (HPC), Ireland	Title Presented : Digital Continuum and Twins for Green Transition	
Key Points: <ul style="list-style-type: none"> ✓ Technologies for data management and computing ✓ The combination of digital continuum technologies and digital twin tools 		

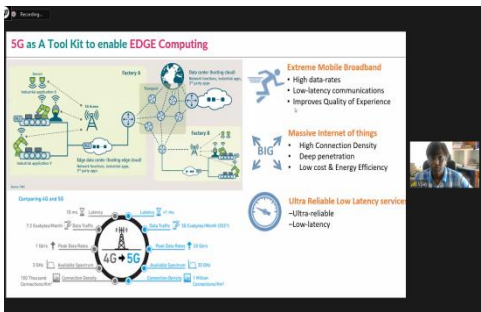
Presentation Session Timing 10.15 AM -11.30 AM		
Track Incharge	Dr.A.Shanthini&Dr.A.Shobadevi	
Session Chair	Dr.A.Murugan	
Session Co-Chair	Dr.C.Amuthadevi	
No. of Paper Selected	7	
No. of Paper Presented	6	
No. of outside participants	4	
No. of SRMIST Participants	2	
No. of International Participants	-	
No. of Research Scholars	-	
No. of Faculties	1	
No. of Students	5	
Best Paper Award Title	A Hardware-based Multi-factor Authentication - An initiative to secure web applications	
Best Paper Award Received By	SHAMUNESH P, ASHWIN RAJA, CHARU KHEMKA Department of Computing Technologies, School of Computing, SRMIST,KTR	

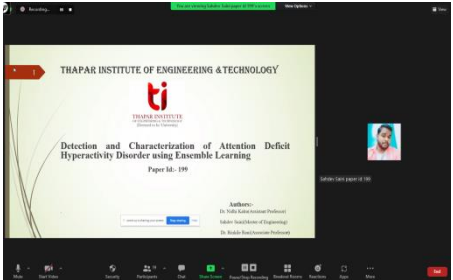

TRACK 12

Invited Talk Timing 9.00 AM – 10.00AM		
Key Note Speaker: Prof.Abbhishek Srivastava		Title Presented: Web of things
Key Points: <ul style="list-style-type: none">✓ The Web of Things (WoT) is a computing concept that describes a future where everyday objects are fully integrated with the Web.✓ The prerequisite for WoT is for the "things" to have embedded computer systems that enable communication with the Web.		
		

Presentation Session Timing 10.15 AM -11.30 AM		
Track Incharge	Mrs.Geetha and Mrs.Ranjani	
Session Chair	Dr.Saad Yunus	
Session Co-Chair	Dr.Shiny Angel	
No. of Paper Selected	7	
No. of Paper Presented	6	
No. of outside participants	3	
No. of SRMIST Participants	3	
No. of International Participants	-	
No. of Research Scholars	1	
No. of Faculties	1	
No. of Students	4	
Best Paper Award Title	American Sign Language Recognition Algorithm based on Convolutional neural Network	
Best Paper Award Received By	SishtlaDivyarani SRM Institute of Technology (VIT), Chennai	

TRACK 13

Invited Talk Timing 9.00 AM – 10.00AM		
Key Note Speaker : Mr. Vijay Anand Senior Director and Chief IoT Architect, Capgemini, Chennai	Title Presented : Emerging Trends and Interoperability Challenges in IOT, Edge /Fog computing and smart systems.	
Key Points: <ul style="list-style-type: none"> ✓ Recent trends in IoT based Vehicles with Edge , Fog computing ✓ The HPE edgeline device systems, 5G as a toolkit to enable EDGE computing 		

Presentation Session Timing 10.15 AM -11.30 AM		
Track In-charge	Mrs. M. Rajalakshmi, Mrs. P. Nithyakani	
Session Chair	Dr. E.Sasikala	
Session Co-Chair	Dr.M.Uma	
No. of Paper Selected	6	
No. of Paper Presented	6	
No. of outside participants	6	
No. of SRMIST Participants	-	
No. of International Participants	-	
No. of Research Scholars	-	
No. of Faculties	4	
No. of Students	2	
Best Paper Award Title	Energy Bill Minimisation of Dynamic Tariff Bound Residential Consumers by Intentional Load Shifting	
Best Paper Award Received By	Dr. Hithu Anand, Dr. R. Rengaraj, Dr. G. R. Venkatakrishnan Sri Sivasubramaniya Nadar College of Engineering, Chennai	

From each track one paper had been identified to be the best among the presented and rewarded with a cash prize of Rs. 3000. Cash prize was sponsored by Great Learning.

Valedictory Function (2.00 PM to 3.30PM)

- **Prof. B. Neppolian** Dean (Research), SRMIST, Kattankulathur was invited as a guest. Dr. Maragatham gave the welcome address. Dr. B. Amutha, Professor, CTech, SRMIST presented the conference report.
- Dr. B. Neppolian Dean (Research) shared the ideas to write the research paper & encouraged the Research Scholar, Students & Faculties to publish the papers in reputed journal. Highlighted the importance of quality publication and need to ensure that students are kept informed about to avoid plagiarize others work. Highlighted the facilities available in campus for research work and asked everyone to utilize the resources in an effective manner.
- Dr. B. Neppolian Dean (Research) honoured our sponsor Mr. Antony, Great Learning by presenting memento. Dr. Revathi Venkataraman honoured our Chief Guest by presenting Memento. Last but not least vote of thanks was delivered by our Conference Secretary Dr. K. Vijaya, Associate Professor, CTech. Finally Our National Anthem was played and Conference ended by Group photo Session.



Expert Members on Dias



**Welcome Address - -
Dr. G. Maragatham**



**Conference Report –
Dr. B. Amutha**



**Special Talk - Prof. B.
Neppolian**



**presenting memento to our
sponsor Mr. Antony**



**Dr. Revathi Venkataraman
honouring our Chief Guest**



Audience



Audience



Note of Thanks - Dr. K. Vijaya



National Anthem – Audience



National Anthem - Dias



Group Photo

