**Personal assistance for seniors who are self -reliant**

**Literature Survey**

**I**ntroductionto Internet of things:

The application of IoT technology in today's healthcare world offers physicians and nurses with ease as it extends to various medical areas (e.g., real-time tracking, patient experience management and treatment management). Some of the main applications of IoT innovations in the health care industry is the Body Sensor Network (BSN)[1] application where patients can be monitored[2] utilizing a minuscule and lightweight wireless sensor array.This approach will help the actions of elderly people in real time and track the health program. In this way the information gathered by different wearable devices is stored in real time in the central database which connects the right information with citizens, physicians and practitioners in the event of an emergency. This way,[3] the program will improve flexibility, reliability and also minimize health costs in order to maximize convenience, protection and the administration of an elderly life's daily routine. We defined the main network specifications in real-time incident upcoming, bandwidth needs and data generation for a traditional remote health monitoring program. However, in order to understand the needs of this networks, in particular the bandwidth requirements and the data volume produced, we researched network connection protocols like the CoAPs, the MQTT and HTTP[4].A conceptual IoT-based healthcare network is evaluated with the planned authentication and authorization framework. This platform is constructed from a Pandaboard, a WiSMotes and a TI SmartRF06 frame. The CC2538 panel, which has been inserted into the TI board, serves as a clever portal. The suggested design is better than a state-of - the-art unified delegation design, which uses a better key management system[5] between sensor nodes and the intelligent gateway. In fact, because of the hierarchical design of the system, the effect of DoS attacks is that.

Health monitoring for healthy and supportive living is one of the paradigms that IoT applications can greatly enhance the health of older people. We present here an IoT architecture that is tailored to your healthcare requirements. The suggested design gathers the data and transmits it to the cloud[6] for processing and review. The consumer will provide input behavior based on the analyzed results.This paper introduces a novel hybrid approach to tackle some of the drawbacks of the principle of proof and its variants. The unnormalized[7] conjunctive approach blends with the laws of a plurality. In case studies in computational modeling concerning behavior detection in an intelligent home environment, the suggested rule is tested.Within this paper, we suggest a general model of an insightful intensive care unit health network for tracking dangerous patients. The program offers clinicians and warnings in real time to improvements in[8] core parameters or patient behavior and significant adjustments in environmental parameters to take mitigation steps. The system includes details on these factors. Real-time evidence from elderly gestures. The measurements of the module are interpreted and evaluated using a decision-making model focused on big data on a Smart IoT Gateway to provide high productivity in the detection of drops. In the case of a crash, an alarm is triggered [9] and the device immediately responds by transmitting alerts to the elderly classes. The framework also offers cloud-based infrastructure. There is a distribution facility that delivers patient services from a technical perspective.There are many elements of the current program. Just results from diverse sources i.e. detectors and hospital instruments for the ecosystem), will it continually track the health condition of older citizens. At the other hand,[10] should guarantee outside and indoor position in order to recognize the Elderly in and out of their home in real time. A program of remote thinking manages all data gathered for appropriate incidents and alerts.Throughout the first three levels, we primarily add. SecureData comprises two strategies for the first two layers: light-weight, FPGA hardware dependent cipher algorithm and hidden cipher exchange algorithm. We are learning KATAN algorithms and utilizing the concept of the hidden cipher communication system to preserve patient [11]safety, we are integrating and improving them on the FPGA hardware framework. We implement a centralized storage methodology on the cloud computing layer that requires a variety of cloud data servers to maintain the safety of the patient on the cloud computing layer. The network comprises primarily of two parts: the data processing portion and the transmission function. In the data collection section we have planned the tracking scheme (tracking parameters and frequencies for each parameter) on the basis of medical expert interviews. The aim of sampling at various levels on a continuous basis is to provide several indications (blood pressure, ECG, SpO2, heart rate, pulse rate, blood fat and glucose)[12] and an environmental predictor (patient location). There are four methods to relay data avoiding risks, including for scientific research, correspondence and computational criteria.The RF identification (RFID) technology is now mature to deliver part of the IoT physical layer for personal healthcare through low cost, energy-saving and[13,14] disposable sensors in intelligent environments. A research on the state-of - the-art RFID is proposed for use in body-centered applications and for gathering details on the user's living atmosphere (temperature, humidity and other gasses).

IBM Cloud:

IBM Cloud is a suite of cloud computing services from IBM that offers both platform as a service(PaaS) and Infrastructure as a service(Iaas).

With IBM Cloud IaaS, organizations can deploy and access virtualized IT resources -- such as compute power, storage and networking -- over the internet. For compute, organizations can choose between bare-metal or virtual servers.

With IBM Cloud PaaS -- which is based on the open source cloud platform cloud foundry -- developers can use IBM services to create, manage, run and deploy various types of applications for the public cloud, as well as for local or on-premises environments. IBM Cloud supports various programming languages, such as Java, Node.js, PHP and Python and extends to support other languages. IBM Cloud platform supports access to other IBM tools and services – including IBM watson and IBM Cloud Functions for serverless computing -- as well as those from third-party vendors.

There are a number of IBM cloud services that are a part of the IBM cloud. These services are grouped into 16 categories:

* AI/machine learning: A collection of Watson-based AI resources and tools for building your own AI models.
* Automation: Automation resources enable business workflows to be automated using IBM Cloud Pak. Turbonomic is also available as an automation resource and can be used for application resource management and cost optimization.
* Containers: IBM offers its own cloud Kubernetes service, as well as access to the container registry, Red Hat OpenShift and Istio (a server mesh for microservers).
* IBM Cloud Paks: IBM Cloud Paks are applications that are certified for use on Red Hat Open Shift. Cloud Paks exist for business automation, data, integration, network automation, security and Watson.
* Quantum: Provides the ability to run workloads on quantum systems through IBM Quantum composer, the IBM Quantum Lab and the Qiskit SDK.
* Compute: Offers various compute resources, including bare-metal servers, VMs and serverless computing on which enterprises can host their workloads.
* Networking: Provides cloud networking services, such as a load balancer, a content delivery network, VPN tunnels and firewalls.
* Storage: IBM's cloud storage offerings include object, block and file manager for cloud data.
* Logging and monitoring: Provides tools to log, manage and monitor cloud deployments, including Cloud Activity Tracker, Cloud Log Analysis and Cloud Monitoring.
* Security: Includes services for activity tracking, identity and access management and authentication.
* Databases: Provides a variety of SQL and NoSQL databases, as well as data querying, warehousing and migration tools.
* Analytics: Offers data science tools such as Apache Spark, Apache Hadoop and IBM Watson Machine Learning, as well as analytics services for streaming data.
* Internet of things(IOT): Includes the IBM IoT Platform, which provides services that connect and manage IoT devices, and analyzes the data they produce.
* Developer tools: Includes a CLI, as well as a set of tools for continuous delivery, continuous release and application pipelines.
* Blockchain: Provides IBM's Blockchain Platform, a SaaS offering to develop apps, enforce governance and monitor a blockchain network.
* Integration: Offers services to integrate cloud and on-premises systems or various applications, such as API Connect, App Connect and IBM Secure Gateway.

NODE- RED:

All of us make use of IoT in one way or the other today, and this usage will only grow in the near future. This article details how Node-RED, a powerful and easy-to-use programming platform, helps in implementing IoT and edge computing*.*

The Internet of Things (IoT) is omnipresent in today’s world. A few fields where it is dominant are listed below.

* Smart health and medical services: Smart ambulances, hospital management, intelligent drug control, etc.
* Smart cities: Smart traffic control, smart toll plazas, pollution monitoring, water quality management, self-driven cars, drones, law enforcement, energy conservation, etc.  
  Personal applications: Smart health gadgets, theft avoidance, controlling home appliances, etc.
* Retail sector: Automated checkout, logistics monitoring and management, etc.
* Agriculture: Analysis of crops, dynamic water distribution, smart irrigation, farm surveillance, drones for smart farming, agriculture robots, etc.

Many other domains, too, are associated with the field of IoT, especially where intelligent robotic applications are being developed. The Internet of Everything (IoE) is another term used for smart applications, and is the integration of IoT with the cloud and the World Wide Web for the real-time connectivity of devices.

A number of programming platforms are available for working with IoT, IoE, fog or edge scenarios. Hundreds of toolkits, which are very powerful and easy to use for dynamic research, are available as well.

**Node-RED: A tool for flow based programming of IoT scenarios**Node-RED (https://nodered.org/) is a powerful and easy-to-use programming platform for the simulation of IoT scenarios. Fog and edge computing can also be done using flow based programming in Node-RED. Here, high performance structures can be implemented using minimum coding.

IBM IOT Platform:

Watson IoT Platform, formerly known as IBM IoT Connection Service, connects devices, ingests device data, and transforms that data into meaningful insights. Watson IoT Platform and its additional add-on services enable organizations to capture and explore data for devices, equipment, and machines, and discover insights that can drive better decision-making.

Watson IoT Platform combines the power and simplicity to scale to industrial IoT applications, solutions, and workloads. It integrates the existing capabilities and functions of IBM IoT Connection Service in an end-to-end, fully managed cloud service available for subscription in production or non-production environments.

Watson IoT Platform communicates with your applications and devices by using the Watson IoT Platform API and the Watson IoT Platform messaging protocol. Other capabilities include:

* Appliance claiming
* Device registration and setup
* Authentication and security
* Data lifecycle management
* Device management
* Alerts and remote monitoring
* Solution administration

Accelerate development and PoCs with production and non-production subscriptions

Watson IoT Platform for Production subscription is available in various implementation sizes and scales:

* Sensor
* Consumer
* Enterprise
* Industrial

Watson IoT Platform also provides a non-production environment for developing application content and conducting Proofs of Concept (PoC). Watson IoT Platform for Non-Production is offered in a predefined environment at a fixed monthly subscription. This non-production environment can quickly conduct an IoT PoC and move development from non-production into production. Users can easily simulate device deployment; authenticate, claim, or register a device; create dashboards and groups; deploy alerts; and utilize at global scale.

The Watson IoT Platform Lite Plan on the IBM Cloud offers 500 registered devices, 500 application bindings, and 200 MB of each of data exchanged. This includes data analysis and edge data analysis at no charge.

Enrich and extend the Watson IoT Platform with optional add-ons

Watson IoT Analytics service is an extension to the Watson IoT Platform. It enables line-of-business users to easily enrich, augment, and interact with the raw data that is originating from the IoT Platform with additional analytical measures and configurable business rules to get a better view of their operations and business. Watson IoT Analytics service:

* Offers support for creating, monitoring, and enforcing business-relevant analytic functions
* Provides a user interface that automates the workflow of gathering input data for analytic function calculation from multiple sources; defining input data to perform calculations; acting on the calculated values; and storing the calculated results
* Enables developers to create and publish custom analytic functions onto the catalog through a python-based API

Watson IoT Blockchain service is an extension to the Watson IoT Platform. It enables Internet of Things (IoT) and assets to validate provenance and events in a trusted, immutable ledger that is designed to increase trust and transparency across ecosystems.

The service enables IoT devices to send data to a private blockchain ledger that is shared by your business network. The secure blockchain provides peers with the capability to record transactions in a decentralized data log that is maintained on a network of computers. With the Watson IoT Blockchain service, you can use near real-time device data to achieve compliance, contract validation, and collaboration on a process or product that was delivered in the supply chain.