

IoT Home Automation Projects

1. Forget Me Not Design Challenge: Here is the project that uses IOT to make you remember some things at home. This system automatically switches off all the devices using a single button. Monitors room temperature and ensures all doors are closed. It also feeds the cats and monitors it.
2. Automatic Smart Parking System using Internet of Things (IOT): Here an automatic parking system was developed. This system finds the nearest parking area and also provides parking slot in the given area. Thus it reduces the time in finding parking area and also fuel consumption of the vehicle.
3. IOT Based Raspberry Pi Home Automation Using IBM Bluemix: This project shows the home automation using IBM's Bluemix package. One can control the home appliances from anywhere in the world.
4. IoT Home Security Model: This home security system continuously monitors the activities in the home and if there is any harmful activity it is intimated to the owner. The data is stored in the cloud.
5. IoT DoorBell: This project shows an automatic door bell which sends an sms or email. Thus the owner can easily monitor from anywhere if someone knock his door.
6. Home Automation Using Internet of Things: Internet of Things (IoT) allows us to implement home automation system that can be controlled remotely through internet. The proposed system can monitor different parameters like gas, light, motion detection, temperature, etc. using the sensor data and also trigger a process according to the requirement. The data from the sensors are uploaded to a cloud server and this data can be used to analyze the parameters.
7. Smart e-Health Gateway: Bringing Intelligence to Internet-of-Things Based Ubiquitous Healthcare Systems: The paper focus on the fields of IoT and health care systems. A smart e-Health gateway is proposed here which acts as a bridge for medical sensors and hospital automation systems to internet and cloud computing platforms. Such gateways can be used in energy efficiency, reliability and interoperability of the health care systems.
8. Internet of Things: Ubiquitous Home Control and Monitoring System using Android based Smart Phone: Smart homes or home

automation is one of the main applications of IoT and a low cost home monitor and control system is presented in this paper. The system has an embedded web server with internet connectivity. An Android application can be used to remotely control the appliances over the internet. Either mobile networks like 3G/4G or internet using Wi-Fi can be used.

9. Internet of Things Based Architecture of Web and Smart Home Interface Using GSM: The smart home system uses GSM and internet for controlling the home appliances. It can be monitored from anywhere in world. Commands from the web server are converted into GSM commands and sent to the receiver. This controls the appliances

IoT Projects with Raspberry Pi

1. Exploring IOT Application Using Raspberry Pi: This project shows the functioning of raspberry pi as server. Several computers are connected to it and files are accessed and deleted over the network. These are accessed through password to provide security.
2. Raspberry Pi as Internet of Things hardware: Performances and Constraints: This paper compares the key elements, performance of present existing IOT platforms with raspberry pi. It shows that raspberry pi is the best with some disadvantages.
3. IoT Based Biometrics Implementation on Raspberry Pi: Here a low cost IOT based biometric system was built. The application of raspberry pi and cloud computing lead to new way in the research of IOT.
4. Review on Temperature & Humidity Sensing using IoT: Here is the temperature and humidity sensing using IOT. This is a novel method using raspberry pi scripting.
5. Raspberry pi Based Smart Supervisor using Internet of Things (IoT): The smart supervisor system consists of a USB camera, it is encoded on arm-Linux platform, then it is transmitted, and is decoded and displayed as H.264 video.
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| <p>7. Pi Zero IOT Led Matrix Beamer: IOT LED matrix beamer displays the messages and pictures on wall from the internet. It uses raspberry pi0 board, Lamp, OGT cable.</p> |
| <p>8. IoT Temperature Sensor with Raspberry Pi 2 and Thermistor: This project shows the temperature monitoring with raspberry pi. A thermistor is used for monitoring the temperature.</p> |
| <p>9. Motion Controlled Servos using IoT: Real time data streaming using IoT is demonstrated in this project. A Raspberry Pi based motion control of servo motors with live data streaming over the internet is implemented. Leap Motion controller is used for motion tracking and PubNub library is used for data streaming. Four servos and two 8x8 RGB LED matrices are used for detecting motion of the hands and displaying colors according to the spacing between fingers.</p> |
| <p>10. IoT based Stepper Motor Control with Raspberry Pi: The combination of Raspberry Pi and IoT is an exciting one. Raspberry Pi has many general purpose I/O pins and has the ability to control different actuators like stepper motors. In this project, an internet control of stepper motor using Raspberry Pi computer is developed. The connectivity is divided into server side software and client side software.</p> |
| <p>11. IoT Weather Station: A Raspberry Pi and Arduino based IoT weather station is designed in this project. Raspberry Pi provides the necessary network or internet connections while Arduino is associated with the sensors like temperature. The data from the sensor is collected by the Raspberry Pi and is uploaded to a cloud server via SAMI API. The collected data can be monitored and analyzed remotely.</p> |
| <p>12. Home Automation using Raspberry Pi 2 and Windows 10 IoT: This project utilises raspberry pi and arduino for home automation using IOT.</p> |
| <p>13. Multi Room Music Player: An IoT based multi room audio or music streaming system is explained here. A multi room audio system can be used to listen to music in every room of the house. The system uses a Raspberry Pi as the main controller with IR control and relay board for enabling or disabling speakers in specific room. Can be used with Ethernet or Wi-Fi and has the ability to play audio from PC, iPhone or online.</p> |
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of the system mentioned here is to detect electricity theft. It also monitors the energy usage and intimates the customer. A Raspberry Pi based system is used with Wi-Fi connectivity as it implements the IoT network. Any discrepancies in electricity usage, the data is transferred to the remote server over internet.

IoT Projects Using Arduino

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2. Smoking Meat with the Internet of Things: This project shows the internal grill monitoring and is monitored over the internet. Arduino plays a key role in this project.
3. Internet of Things with Android and Arduino: Control remote Led: This project shows the intergration of arduino with Android using IOT.
4. Build a cloud-ready temperature sensor with the Arduino Uno and the IBM Watson IoT Platform: This project shows the building of a temperature sensor. It uses arduino and lot platform developed by the IBM.
5. An IoT Temperature Monitor for Balcony Garden: An Arduino based garden temperature monitoring system is designed here. The system uses a Wi-Fi module to make it an Internet of Things (IoT) device. The system continuously monitors the temperature and posts the readings on the web. The device runs on a battery and in order to save the battery, the readings are taken every 10 minutes and the Arduino goes to sleep.

Wireless / GSM Based IoT Projects

1. A Simple IoT Project with the ESP8266 WiFi module: Here is a simple project with ESP8266 wifi module. This project collects the temperature and is displayed on the network.
2. IoT Candle: This project shows a beautiful candle using Wifi Module and RGB light .

3. IoT Smart Bulb: A RGB bulb that monitors the can be that can be enabled using a wifi module is explained in this project.
4. AWS IoT Remote Soil Moisture Monitor: A soil moisture monitoring system using IOT is proposed here.A ESP8266 Wifi module was used here to connect the system to the internet. Thus the state of the soil moisture can be measured from anywhere in the world.
5. Smart Security Solutions based on Internet of Things (IoT): The proposed system uses RFID or biometric technology for access control system.This is a wireless system.Inputs from the user are processed inside the controller and if they are valid access is given and the details of the user are transferred to the PC using Wi-Fi module.
6. A Design of the IOT Gateway for Agricultural Greenhouse: In this project a green house monitoring and control system was proposed.lot acts as a gate way for public network and wireless network.
7. Design and Control of Internet of Things Enabled Wireless Sensor Network: The paper proposes an IoT based monitoring and control of domestic conditions like temperature, humidity, pressure, current etc. with the help of a low cost wireless sensor network. The system continuously monitors and measures the parameters using sensors and transmits the data over internet. A remote mobile based application can access the data and control the devices.
8. Multidisciplinary Model for Smart Agriculture using Internet of Things: The agriculture industry in developing nations still needs to be modernized and can be done by implementing latest technologies for better production, cost efficiency and distribution. In this article, the concepts of IoT, wireless sensor network, cloud and mobile computing and big data analysis are integrated to develop a smart agriculture system. Different entities like soil health, fertilizers, weather etc. are informed to the farmers.
9. An Internet of Things Approach for Managing Smart Services Provided by Wearable Devices: A wireless sensor network based autonomous physical condition performance system is presented which includes several elements of the IoT like smart phones, watches and physiological monitoring devices. Bluetooth and wireless sensor network enable the integration of the wearable devices and the smart devices. The system collects the data from the physiological devices via Bluetooth and suggests a series of physical activity to improve fitness.

10. Internet of Things based Controlling of Appliances using GSM/GPRS Enabled Embedded Server for Remote Access: The aim of this paper is to implement a smart way to control home appliances using IoT and GSM or GPRS. IoT is the brain of the system as an IoT agent transmits the data to the GSM module after receiving the appropriate data from the user over the internet. The communication to the GSM module is via SMS commands and can be replaced by GPRS technology.

11. Internet of Things Based Architecture of Web and Smart Home Interface Using GSM: The smart home system uses GSM and internet for controlling the home appliances. It can be monitored from anywhere in world. Commands from the web server are converted into GSM commands and sent to the receiver. This controls the appliances.

12. Internet of Things Based Architecture of Web and Smart Home Interface Using GSM: A prototype of smart home controlling system based on IoT and GSM technologies is presented here. In this system, a remote web server is used to monitor and control household devices using internet and GSM-SMS technologies. The user commands from the web are interpreted by the IoT agent and are converted into GSM-SMS commands. The microcontroller decodes the SMS commands and communicates with the respective device.

13. Secured Smart Healthcare Monitoring System Based on IoT: A PIC microcontroller based smart and secured health monitoring system is developed using the concept of IoT. The microcontroller acts as a gateway to the sensors like temperature, pulse, etc. by collecting the data from them and transferring it to a server through internet. The data is accessible by the doctor and during extreme conditions, a warning message is sent to the doctor via GSM module.

14. Intelligent Traffic Information System Based on Internet of Things: A real time traffic information collection and monitoring system for improved road transportation is proposed here. The architecture of the system employs Internet of Things (IoT), Wireless Sensor Network (WSN), RFID, GPS, cloud computing etc. The proposed system is based on IoT and the data collected from large number of sensors and RFIDs is transmitted wirelessly. IoT helps in improving traffic conditions, safety, efficiency and cost of implementation.

15. Internet of Things Based Smart Transportation Systems: The concepts of Wireless Sensor Network (WSN) and Internet of Things (IoT) is used in the proposed system to implement a smart transport system. One of the best applications of the proposed system is in car parking management. RFID, parking sensors, parking meter, road sensors etc. all communicate over the internet and resolve in finding a parking spot and issuing tickets. The system can also be extended to traffic monitoring as well.

16. Internet Of Things (IoT) and Cloud Computing for Agriculture: The technologies of IoT and Cloud computing are integrated for the agriculture sector. Along with the above mentioned technologies, other technologies like wireless sensor network, RFID, geomatics like GPS etc. are used to develop a wisdom based system. With the help of this system, farmers will be able to distribute their products to a wider area of customers. The supply chain management will be controlled by the farmers and corporate sector can provide assistance via cloud computing.

17. Sensor Technologies using ZigBee and RFID within the Cloud of Internet of Things in Healthcare Applications: A cloud of Internet of Things (CloT) system is proposed where the objects in the network can be identified and located in real time. The emerging technologies like ZigBee, RFID, wireless sensor network and IoT are integrated to provide knowledge management system in hospitals. Each object is associated with ZigBee / RFID tags and the system will collect, manage, process and store data for health care purposes. The system provides a visual interface for different operational decisions.

18. Analysis of RFID Application for U-healthcare System in Internet of Things: Wireless Sensor Nodes like RFID tags, NFC tags and other sensor nodes are the main focus of the IoT. Smart health information system utilizes such sensor nodes as a part of the wireless network in hospital environment. The article focuses on the security and vulnerability of the RFID system when used in an IoT application.

19. Green Campus with the Internet of Things: The concept of Internet of Things or IoT is implemented to construct a green campus environment which helps in saving the energy by managing the heavy power consumption devices like air conditioners and work station computers. RFIDs and ZigBee modules along with temperature sensors act as the wireless sensor network. The

computer's idle time is monitored and based on the temperature, the air conditioners are turned on or off.

20. Wireless Sensor System According to the Concept of IoT -Internet of Things: This system monitors the sensors wirelessly. Sensors state can be monitored from anywhere and at anytime in the world.

IoT Projects Using Microcontroller

1. IoT Incubator for Growing Bacteria: This project monitors the growth of bacteria in this incubator. It is made up of some heating pads, fan, temperature sensors. All these are monitored by the microcontroller.
2. IoT Based Electricity Energy Meter Reading and Disconnection using PLC modem and PIC Microcontroller: A PIC microcontroller based smart electricity energy meter monitoring system is proposed here. An IoT domain is used for the system to monitor the units, temperature and inform the user over the internet. Based on the past usage, the system optimizes the power usage for energy saving. In case of delay in payments, the service provider can remotely disconnect the power supply.

IoT Robot Projects

1. A Space Unrestricted Multi-Robot Combat Internet of Things System: This paper researches about multi robot system cooperation without space restriction using IOT.
2. IoT Dune Buggy – Control it from Anywhere!: This project is an attempt to control the locomotion of a robot using the internet from anywhere. The robot is fixed with IR sensor in order to monitor the obstacles in its path. A temperature sensor to monitor the surrounding temperature and a LDR to monitor the light intensity was used here.

IoT LED Projects

1. IOT Led Matrix: The matrix display shown here can be controlled using a mobile phone. It uses a MINTIA sweet box , IOT LED Matrix, a wifi module, LIPO battery and charger board. A app is created for controlling the this wifi with mobile.
2. Smart transportation system: This project shows the IOT enabled smart transportation system.
3. IoT Garage Door Monitor/Opener with Finger Print Scanner: The garage door opener proposed here can be used to monitor the garage door from any where through the mobile phones or by the led array. It can monitor the status of the door from anywhere and a finger print access is given to it in order to stop unauthorized access.
4. IOT based Radio Telescope: Radio telescope monitors the radio astronomy enviroment and accordingly it is controlled using mobile phones.
5. IoT Enabled Egg Tray: The IOT enabled Egg tray monitors the count of eggs and displays it on the interent. Not only this it remonds the owner when he is near a grosroory shop/mall about the low count.
6. IoT Mbed Smart Alarm Clock: An internet enabled smart alarm clock is developed in this project. The alarm can be set via internet as the clock uses an Mbed web server. It also displays current time, temperature and weather. Further, it can control devices like lights, fan and speakers upon reaching the specified time for alarm.
7. Internet of Things for Smart Cities: The aim of this paper is to analyze the implementations of smart cities using Internet of Things or also called as urban IoTs. The proposed architectures exploits the existing advanced communication systems and implements value added services for the administration of the city and also for individual citizens.
8. A Real IoT Implementation of a Machine-learning Architecture for reducing energy consumption: The aim of the approach is to reduce the ecological impact of replacing the old consumer goods with new internet enabled devices. An electronic adaptor is embedded with the old appliances so that they can be part of the IoT network and avoid replacement. The paper also aims to provide a cloud based application for energy consumption monitoring and methods for optimal efficiency.

IoT Projects Using Android Application

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Sensor Based IoT Projects

1. IoT Home Security Model: The home can be monitored from where through the internet using the sensors connected in the home.
2. IoT Pill Bottle: This project shows the IOT pill bottle. It helps the Patient and the doctor. It monitors the pills bottle using a cap button to detect the time pattern of pill taken and also had IR sensor to detect fill status and refill it.
3. MABO – monitoring system of children in school: This system has a tag with some sensors given to the children in the school. This monitors the location of the children and is noted on the internet.
4. Network Architecture Designed for an Adaptable IoT based Smart Office: With the help of this project, live remote monitoring of vehicle's essential data like temperature, pressure, oil, lights, GPS, etc. is possible by using different sensors. Using the IoT domain, the data from different sensors is collected and information like different ways to reach from A to B, shortest way to save fuel, effective methods for faster and safer driving etc. are displayed.
5. Health Monitoring and Management Using Internet of Things: The concept of remote health monitoring is implemented here with the help of IoT technology. The system integrates the concept of health monitoring and clinical practice. This is possible with the help of latest wearable devices with built-in sensors and also have IoT capability. The data from the sensors is transferred over the internet and can be used to analyze the health of a patient by the physician.

WiFi Based IoT Projects

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RFID Based IoT Projects

1. Secure Smart Environment Using IOT based on RFID: The smart and secure enviroment system can be used in shopping malls.The lot connects everything to the internet.Rfid provides the authentication.The products placed in the shopping cart are autoamticclay deteted and the amount of bill deducted from your account.
2. Smart Trash Can IoT System: This project aims at optimizing the collection of waste and thus reducing the fuel consumption. This system gives the details like amount of stuff inside the container, temperature inside the container. This data is sent over the cellular network and is displayed on the web platform. Drivers are provided with RFID card ,so that the driver who collected the garbage can be noted.
3. Smart Disease Surveilance Based on Internet of Things (IoT): Health monitoring and surveillane allows the Governments of developing nations to interpret the data on disease patterns and necessary actions can be implemented. The concept of Internet of Things (IoT) helps in retrieving information from everyone connected to the internet. An RFID and some sensing devices capture the patients' records and transfer them to the backbone network for further processing.

4. The Application of IoT in Agricultural means of Production Supply Chain Management: In this article, the concept of Internet of Things (IoT) is applied to production supply chain for agricultural products. The applications of IoT to agriculture products supply chain will improve the operation efficiency of low level supply chain, small and medium industrialization, low level management and information exchange. IoT based on RFID is integrated in all aspects of supply chain for better management.
5. Integrating Wireless Sensor Networks into Internet Of Things For Security: IoT includes many objects like RFID tags, sensors, actuators, computers, phones etc. All these devices are assigned with a separate identifier and through unique addressing system, they communicate with each other. The purpose of this paper is to create a secure channel between the sensors and the internet host for enhanced security of the communication.
6. Secure Smart Environment Using IOT based on RFID: An IoT technology based smart environment scheme is mentioned here that is based on RFID system. The system helps in implementing a secure shopping scenario where the goods are associated with an RFID tag and the information is made available to the user through their smart phone. The billing and payment are made easy. The system can be used to track the quantity of the goods and set a reminder.
7. RFID Modular System for the Internet of Things (IoT): The main aim of this paper is to design system architecture for identifying and monitoring movement of monitored items. The basic requirement is to create a modular system and application of this system for real hospital laundry management application

Other IoT Projects

1. Vehicle Simulator – VTR / RTR: This project is a virtual vehicle simulator that can be used by anyone.
2. IoT-based Intelligent for Fire Emergency Response Systems: This intelligent fire emergency system directs the evacuees by calculating the time and emergency, so that it can save many human lives.
3. The constitution of vegetable traceability system in agricultural IOT: In this the constitution of vegetable traceability system in agricultural IOT is introduced. In addition, it discusses the

application in the processes of planting, logistics, consumer. Then some existing problems can be analyzed. Finally, this article forecasts the application of vegetable traceability system in the future.

4. An IoT based reference architecture for smart water management: An intelligent water management system combining bussiness process coordination and decision support.
5. Optic Fiber Sensing IOT Technology and Application
Research: This article discusses about the Current status of the IOT. Not only this Optical sensing technology was also discussed.Finally,Optical fiber sensing technology and iot are combined and a specific application is developed.
6. Big Data Summarization Using Semantic Feture for IoT on Cloud: This paper proposes a big data (i.e., documents, texts) summarization method using the extracted semantic feature which it is extracted by distributed parallel processing of NMF based cloud technique of Hadoop.
7. Enabling Smart Cities through a Cognitive Management Framework for the Internet of Things: The proposed framework solves the the issues that prevent IOT from Supporting development of smart cities.
8. Getting Lost in the Internet of Things: How to Build a Personal Locator Beacon: This project shows a personal locator becon using IOT.This is used to locate the area if some one needs help.
9. An Internet of Things Oriented Approach for Water Utility Monitoring and Control: This paper shows the An IOT approach for monitering and controlling of water utility management.
10. IOT Power strip: IOT power Strip, in which one can control four power sockets from the phone.For this project no need of installing IOT server.
11. IOT weather station: This project monitors the weather and diaplays it on the internet .
12. IOT Coffee Maker: A coffe maker using IOT can be operated any where.uisng this one can set brew strength ,time delay,brew status.
13. Project "Gallon" – Smart Drinking Water Monitoring Platform: This project monitors drinking water and analyses it.It can be monitored from anywhere using ITO platform.
14. IoT Water Flow Meter: This project collects the water used in the house or apartment and usage is stored in the database.

<p>15. IoT Chat – Messaging for Devices: IoT chat allows the IOT users to communicate with each other from anywhere in the world.this provides the robust and easy to use platform for IOT user and hackers to support their projects</p>
<p>16. Windows IoT Core Breathalyzer: This project shows a internet based alcohol alyzer with cloud based logging and reporting.An LCD. Used in this project helps the user by giving the instructions.</p>
<p>17. Windows IoT: Facial Recognition Door: A facial recognition system is developed in this project.This system detects the authorized user and unlocks the door.If any unauthorized person enters the door it remains locked ,so that it provides the protection.</p>
<p>18. Jet Engine Monitor with Windows IoT Core and Azure IoT Suite: This project leverages Windows IoT Core and Azure Machine Learning connected to an iot hub with web front-end to monitor and predict the remaining useful life of a jet engine.</p>
<p>19. IoT Alarm Clock: Here is the alarm clock usign IOT.It gives the for the voice message .</p>
<p>20. IoT Motion Controlled Servos: Here is the IOT Project which controls the servos by the different hand gestures.This dipalys different colors depending on the finger position</p>
<p>21. Intel IoT Autonomous Underwater Vehicles: An autonomous under water vehicle was designed here to monitor under water satsus of ponds,sea , ocean .</p>
<p>22. DIY – Control Off-road Lego Car Through Internet (IoT) – Part 1 (Back Wheel): Here is a fun project of controlling off road lego thourgh internet.</p>
<p>23. DigiWallet – Your Smart Wallet: Here a smart wallet is proposed in this system.The wallet is paired with the mobile phone and it will sned a notiification if your wallet is out of range.You can locate the wallet by using an app.</p>
<p>24. Build Your Own Hackable, Weight Tracking, Text Messaging Scale with a Sense of Humor</p>
<p>25. Smart Campus: A user-centric testbed for Internet of Things experimentation: The paper presents a smart campus scenario which is testbed for user IoT experimentation. The system employs IoT devices as programmable substrates in office environment and can be experimented with real time end users. The structure provides the realistic end user involvement and also lab based testbeds for experimentation.</p>

IoT Healthcare Projects

1. Intelligent Healthcare Service by using Collaborations between IoT Personal Health Devices: The intelligent health care service system gives the feedback to an individual about their health.
2. Smart plant system: This project shows the plant health status. Environmental parameters like temperature, humidity, light intensity were monitored.
3. Towards an IoT for Healthcare: This project tests the feasibility of using IOT with Biosignal monitoring and shows how it is used at low cost for health care monitoring.
4. E-Health Glove (Intel IoT): The E health glove proposed here monitors the body vitals of the patients and is stored in the server. Although latest ambulances can have body vital measuring equipment, this monitors before the arrival of the ambulance and is informed to doctor for better treatment.
5. A Secure and Efficient Authentication and Authorization Architecture for IoT-Based Healthcare: An IoT based healthcare system is developed using smart gateways with secure and efficient authentication and authorization. The smart e-health gateways perform the tasks of authentication and authorization in place of resource constrained medical sensors. The proposed architecture provides a reliable security for the latest IoT based healthcare systems.

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7. Design and Control of Internet of Things Enabled Wireless Sensor Network: The paper proposes an IoT based monitoring and control of domestic conditions like temperature, humidity, pressure, current etc. with the help of a low cost wireless sensor network. The system continuously monitors and measures the parameters using sensors and transmits the data over internet. A remote mobile based application can access the data and control the devices.
8. Multidisciplinary Model for Smart Agriculture using Internet of Things: The agriculture industry in developing nations still needs to be modernized and can be done by implementing latest technologies for better production, cost efficiency and distribution. In this article, the concepts of IoT, wireless sensor network, cloud and mobile computing and big data analysis are integrated to develop a smart agriculture system. Different entities like soil health, fertilizers, weather etc. are informed to the farmers.
9. An Internet of Things Approach for Managing Smart Services Provided by Wearable Devices: A wireless sensor network based autonomous physical condition performance system is presented which includes several elements of the IoT like smart phones, watches and physiological monitoring devices. Bluetooth and wireless sensor network enable the integration of the wearable devices and the smart devices. The system collects the data from the physiological devices via Bluetooth and suggests a series of physical activity to improve fitness.
10. Internet of Things based Controlling of Appliances using GSM/GPRS Enabled Embedded Server for Remote Access: The aim of this paper is to implement a smart way to control home appliances using IoT and GSM or GPRS. IoT is the brain of the system as an IoT agent transmits the data to the GSM module after receiving the appropriate data from the user over the internet. The communication to the GSM module is via SMS commands and can be replaced by GPRS technology.
11. Internet of Things Based Architecture of Web and Smart Home Interface Using GSM: The smart home system uses GSM and internet for controlling the home appliances. It can be monitored from anywhere in world. Commands from the web server are converted into GSM commands and sent to the receiver. This controls the appliances.
12. Internet of Things Based Architecture of Web and Smart Home Interface Using GSM: A prototype of smart home controlling system based on IoT and GSM technologies is presented here. In this system, a remote web server is used to monitor and control household devices using internet and GSM-SMS technologies. The user commands from the web are interpreted by the IoT agent and are converted into GSM-SMS commands. The microcontroller decodes the SMS commands and communicates with the respective device.
13. Secured Smart Healthcare Monitoring System Based on IoT: A PIC microcontroller based smart and secured health monitoring system is developed using the concept of IoT. The microcontroller acts as a gateway to

the sensors like temperature, pulse, etc. by collecting the data from them and transferring it to a server through internet. The data is accessible by the doctor and during extreme conditions, a warning message is sent to the doctor via GSM module.

14. Intelligent Traffic Information System Based on Internet of Things: A real time traffic information collection and monitoring system for improved road transportation is proposed here. The architecture of the system employs Internet of Things (IoT), Wireless Sensor Network (WSN), RFID, GPS, cloud computing etc. The proposed system is based on IoT and the data collected from large number of sensors and RFIDs is transmitted wirelessly. IoT helps in improving traffic conditions, safety, efficiency and cost of implementation.

15. Internet of Things Based Smart Transportation Systems: The concepts of Wireless Sensor Network (WSN) and Internet of Things (IoT) is used in the proposed system to implement a smart transport system. One of the best applications of the proposed system is in car parking management. RFID, parking sensors, parking meter, road sensors etc. all communicate over the internet and resolve in finding a parking spot and issuing tickets. The system can also be extended to traffic monitoring as well.

16. Internet Of Things (IoT) and Cloud Computing for Agriculture: The technologies of IoT and Cloud computing are integrated for the agriculture sector. Along with the above mentioned technologies, other technologies like wireless sensor network, RFID, geomatics like GPS etc. are used to develop a wisdom based system. With the help of this system, farmers will be able to distribute their products to a wider area of customers. The supply chain management will be controlled by the farmers and corporate sector can provide assistance via cloud computing.

17. Sensor Technologies using ZigBee and RFID within the Cloud of Internet of Things in Healthcare Applications: A cloud of Internet of Things (CloT) system is proposed where the objects in the network can be identified and located in real time. The emerging technologies like ZigBee, RFID, wireless sensor network and IoT are integrated to provide knowledge management system in hospitals. Each object is associated with ZigBee / RFID tags and the system will collect, manage, process and store data for health care purposes. The system provides a visual interface for different operational decisions.

18. Analysis of RFID Application for U-healthcare System in Internet of Things: Wireless Sensor Nodes like RFID tags, NFC tags and other sensor nodes are the main focus of the IoT. Smart health information system utilizes such sensor nodes as a part of the wireless network in hospital environment. The article focuses on the security and vulnerability of the RFID system when used in an IoT application.

19. Green Campus with the Internet of Things: The concept of Internet of Things or IoT is implemented to construct a green campus environment which helps in saving the energy by managing the heavy power consumption devices like air conditioners and work station computers. RFIDs and ZigBee modules along with temperature sensors act as the wireless sensor network. The computer's

idle time is monitored and based on the temperature, the air conditioners are turned on or off.

20. Wireless Sensor System According to the Concept of IoT -Internet of Things: This system monitors the sensors wirelessly. Sensors state can be monitored from anywhere and at anytime in the world.

IoT Projects Using Microcontroller

1. IoT Incubator for Growing Bacteria: This project monitors the growth of bacteria in this incubator. It is made up of some heating pads, fan, temperature sensors. All these are monitored by the microcontroller.
2. IoT Based Electricity Energy Meter Reading and Disconnection using PLC modem and PIC Microcontroller: A PIC microcontroller based smart electricity energy meter monitoring system is proposed here. An IoT domain is used for the system to monitor the units, temperature and inform the user over the internet. Based on the past usage, the system optimizes the power usage for energy saving. In case of delay in payments, the service provider can remotely disconnect the power supply.

IoT Robot Projects

1. A Space Unrestricted Multi-Robot Combat Internet of Things System: This paper researches about multi robot system cooperation without space restriction using IOT.
2. IoT Dune Buggy – Control it from Anywhere!: This project is an attempt to control the locomotion of a robot using the internet from anywhere. The robot is fixed with IR sensor in order to monitor the obstacles in its path. A temperature sensor to monitor the surrounding temperature and a LDR to monitor the light intensity was used here.

IoT LED Projects

1. IOT Led Matrix: The matrix display shown here can be controlled using a mobile phone. It uses a MINTIA sweet box, IOT LED Matrix, a wifi module, LIPO battery and charger board. A app is created for controlling the this wifi with mobile.
2. Smart transportation system: This project shows the IOT enabled smart transportation system.
3. IoT Garage Door Monitor/Opener with Finger Print Scanner: The garage door opener proposed here can be used to monitor the garage door from any where

through the mobile phones or by the led array. It can monitor the status of the door from anywhere and a finger print access is given to it in order to stop unauthorized access.

4. IOT based Radio Telescope: Radio telescope monitors the radio astronomy environment and accordingly it is controlled using mobile phones.
5. IoT Enabled Egg Tray: The IOT enabled Egg tray monitors the count of eggs and displays it on the internet. Not only this it reminds the owner when he is near a grocery shop/mall about the low count.
6. IoT Mbed Smart Alarm Clock: An internet enabled smart alarm clock is developed in this project. The alarm can be set via internet as the clock uses an Mbed web server. It also displays current time, temperature and weather. Further, it can control devices like lights, fan and speakers upon reaching the specified time for alarm.
7. Internet of Things for Smart Cities: The aim of this paper is to analyze the implementations of smart cities using Internet of Things or also called as urban IoTs. The proposed architectures exploits the existing advanced communication systems and implements value added services for the administration of the city and also for individual citizens.
8. A Real IoT Implementation of a Machine-learning Architecture for reducing energy consumption: The aim of the approach is to reduce the ecological impact of replacing the old consumer goods with new internet enabled devices. An electronic adaptor is embedded with the old appliances so that they can be part of the IoT network and avoid replacement. The paper also aims to provide a cloud based application for energy consumption monitoring and methods for optimal efficiency.

IoT Projects Using Android Application

1. Improved Particle Swarm Optimization Algorithm for Android Medical Care IOT using Modified Parameters

Sensor Based IoT Projects

1. IoT Home Security Model: The home can be monitored from where through the internet using the sensors connected in the home.
2. IoT Pill Bottle: This project shows the IOT pill bottle. It helps the Patient and the doctor. It monitors the pills bottle using a cap button to detect the time pattern of pill taken and also had IR sensor to detect fill status and refill it.
3. MABO – monitoring system of children in school: This system has a tag with some sensors given to the children in the school. This monitors the location of the children and is noted on the internet.

4. Network Architecture Designed for an Adaptable IoT based Smart Office: With the help of this project, live remote monitoring of vehicle's essential data like temperature, pressure, oil, lights, GPS, etc. is possible by using different sensors. Using the IoT domain, the data from different sensors is collected and information like different ways to reach from A to B, shortest way to save fuel, effective methods for faster and safer driving etc. are displayed.
5. Health Monitoring and Management Using Internet of Things: The concept of remote health monitoring is implemented here with the help of IoT technology. The system integrates the concept of health monitoring and clinical practice. This is possible with the help of latest wearable devices with built in sensors and also have IoT capability. The data from the sensors is transferred over the internet and can be used to analyze the health of a patient by the physician.

WiFi Based IoT Projects

1. A Simple IoT Project with the ESP8266 WiFi module: Here is a simple project with ESP8266 wifi module. This project collects the temperature and is displayed on the network.
2. IoT Candle: This project shows a beautiful candle using Wifi Module and RGB light .
3. IoT Smart Bulb: A RGB bulb that monitors the can be that can be enabled using a wifi module is explained in this project.
4. AWS IoT Remote Soil Moisture Monitor: A soil moisture monitoring system using IOT is proposed here. A ESP8266 Wifi module was used here to connect the system to the internet. Thus the state of the soil moisture can be measured from anywhere in the world.
5. Smart Security Solutions based on Internet of Things (IoT): The proposed system uses RFID or biometric technology for access control system. This is a wireless system. Inputs from the user are processed inside the controller and if they are valid access is given and the details of the user are transferred to the PC using Wi-Fi module.

RFID Based IoT Projects

1. Secure Smart Environment Using IOT based on RFID: The smart and secure environment system can be used in shopping malls. The IoT connects everything to the internet. RFID provides the authentication. The products placed in the shopping cart are automatically detected and the amount of bill deducted from your account.
2. Smart Trash Can IoT System: This project aims at optimizing the collection of waste and thus reducing the fuel consumption. This system gives the details like amount of stuff inside the container, temperature inside the container. This

data is sent over the cellular network and is displayed on the web platform. Drivers are provided with RFID card ,so that the driver who collected the garbage can be noted.

3. Smart Disease Surveillance Based on Internet of Things (IoT): Health monitoring and surveillance allows the Governments of developing nations to interpret the data on disease patterns and necessary actions can be implemented. The concept of Internet of Things (IoT) helps in retrieving information from everyone connected to the internet. An RFID and some sensing devices capture the patients' records and transfer them to the backbone network for further processing.
4. The Application of IoT in Agricultural means of Production Supply Chain Management: In this article, the concept of Internet of Things (IoT) is applied to production supply chain for agricultural products. The applications of IoT to agriculture products supply chain will improve the operation efficiency of low level supply chain, small and medium industrialization, low level management and information exchange. IoT based on RFID is integrated in all aspects of supply chain for better management.
5. Integrating Wireless Sensor Networks into Internet Of Things For Security: IoT includes many objects like RFID tags, sensors, actuators, computers, phones etc. All these devices are assigned with a separate identifier and through unique addressing system, they communicate with each other. The purpose of this paper is to create a secure channel between the sensors and the internet host for enhanced security of the communication.
6. Secure Smart Environment Using IOT based on RFID: An IoT technology based smart environment scheme is mentioned here that is based on RFID system. The system helps in implementing a secure shopping scenario where the goods are associated with an RFID tag and the information is made available to the user through their smart phone. The billing and payment are made easy. The system can be used to track the quantity of the goods and set a reminder.
7. RFID Modular System for the Internet of Things (IoT): Themain aim of this paper is to design system architecture for identifying and monitoring movement of monitored items. The basic requirement is to create a modular system and application of this system for real hospital laundry management application

Other IoT Projects

1. Vehicle Simulator – VTR / RTR: This project is an virtual vehicle simulator that can used by anyone.
2. IoT-based Intelligent for Fire Emergency Response Systems: This intelligent fire emrgency system directs the evacuees by calculating the time and emergency ,so that it can save many human lives.

3. The constitution of vegetable traceability system in agricultural IOT: In this the constitution of vegetable traceability system in agricultural IOT is introduced. In addition, it discusses the application in the processes of planting, logistics, consumer. Then some existing problems can be analyzed. Finally, this article forecasts the application of vegetable traceability system in the future.
4. An IoT based reference architecture for smart water management: An intelligent water management system combining bussiness process coordination and decision support.
5. Optic Fiber Sensing IOT Technology and Application Research: This article discusses about the Current status of the IOT. Not only this Optical sensing technology was also discussed.Finally,Optical fiber sensing technology and iot are combined and a specific application is developed.
6. Big Data Summarization Using Semantic Feture for IoT on Cloud: This paper proposes a big data (i.e., documents, texts) summarization method using the extracted semantic feature which it is extracted by distributed parallel processing of NMF based cloud technique of Hadoop.
7. Enabling Smart Cities through a Cognitive Management Framework for the Internet of Things: The proposed framework solves the the issues that prevent IOT from Supporting development of smart cities.
8. Getting Lost in the Internet of Things: How to Build a Personal Locator Beacon: This project shows a personal locator becon using IOT.This is used to locate the area if some one needs help.
9. An Internet of Things Oriented Approach for Water Utility Monitoring and Control: This paper shows the An IOT approach for monitering and controlling of water utility management.
10.IOT Power strip: IOT power Strip, in which one can control four power sockets from the phone.For this project no need of installing IOT server.
11.IOT weather station: This project monitors the weather and diaplays it on the internet .
12.IOT Coffee Maker: A coffe maker using IOT can be operated any where.uisng this one can set brew strength ,time delay,brew status.
13.Project "Gallon" – Smart Drinking Water Monitoring Platform: This project monitors drinking water and analyses it.It can be monitored from anywhere using ITO platform.
14.IoT Water Flow Meter: This project collects the water used in the house or apartment and usage is stored in the database.
15. IoT Chat – Messaging for Devices: IoT chat allows the IOT users to communicate with each other from anywhere in the world.this provides the robust and easy to use platform for IOT user and hackers to support their projects
16.Windows IoT Core Breathalyzer: This project shows a internet based alcohol alyzer with cloud based logging and reporting.An LCD. Used in this project helps the user by giving the instructions.
17.Windows IoT: Facial Recognition Door: A facial recognition system is developed in this project.This system detects the authorized user and unlocks

the door.If any unauthorized person enters the door it remains locked ,so that it provides the protection.
18. Jet Engine Monitor with Windows IoT Core and Azure IoT Suite: This project leverages Windows IoT Core and Azure Machine Learning connected to an iot hub with web front-end to monitor and predict the remaining useful life of a jet engine.
19. IoT Alarm Clock: Here is the alarm clock usign IOT.It gives the for the voice message .
20. IoT Motion Controlled Servos: Here is the IOT Project which controls the servos by the different hand gestures.This dipalys different colors depending on the finger position
21. Intel IoT Autonomous Underwater Vehicles: An autonomous under water vehicle was designed here to monitor under water satsus of ponds,sea , ocean .
22. DIY – Control Off-road Lego Car Through Internet (IoT) – Part 1 (Back Wheel): Here is a fun project of controlling off road lego thourgh internet.
23. DigiWallet – Your Smart Wallet: Here a smart wallet is proposed in this system.The wallet is paired with the mobile phone and it will sned a notiification if your wallet is out of range.You can locate the wallet by using an app.
24. Build Your Own Hackable, Weight Tracking, Text Messaging Scale with a Sense of Humor
25. Smart Campus: A user-centric testbed for Internet of Things experimentation: The paper presents a smart campus scenario which is testbed for user IoT experimentation. The system employs IoT devices as programmable substrates in office environment and can be experimented with real time end users. The structure provides the realistic end user involvement and also lab based testbeds for experimentation.

IoT Healthcare Projects

1. Intelligent Healthcare Service by using Collaborations between IoT Personal Health Devices: The intelligent health care service sytem gives the feedback to an individual about their health.
2. Smart plant system: Thi sproject shows the plant health status.Environmental parametrs like temperature,humidity ,light intensity were monitered.
3. Towards an IoT for Healthcare: This projects tests the feasibility of using IOT with Biosignal monitoring and shows how it is used at low cost for health care monitoring.
4. E-Health Glove (Intel IoT): The E health glove proposed here monitors the body vitals of the patients and is stored in the server.Although latest ambulances can have body vital mesuring equipment ,this monitors before the arrival of the ambulance and is informed to doctor for better treatment.

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5. **A Secure and Efficient Authentication and Authorization Architecture for IoT-Based Healthcare:** An IoT based healthcare system is developed using smart gateways with secure and efficient authentication and authorization. The smart e-health gateways perform the tasks of authentication and authorization in place of resource constrained medical sensors. The proposed architecture provides a reliable security for the latest IoT based healthcare systems.

