



Generic Application for Sensors Application Using IOT

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ABSTRACT

IOT is the network of physical devices connected and controlled using smartphones via Internet. In our proposed system "Generic Application for Sensor Application using IOT" helps to fetch the data of the sensors to the mobile application which is connected through the Wi-Fi. Sensor value are stored in Arduino. Arduino consist of the Wi-Fi module which helps Arduino to connect with Wi-Fi. The mobile application that is connected with the same Wi-Fi then the data is fetched. This proposed system will be done with the android studio for application development while C++ programming will be used for the Arduino coding. This proposed system is proposed to help different government organization that helps in different testing like water purity, soil moisture, temperature. It can be used by normal people for different propose. This proposed system is forwarded to demolish the traditional way of testing or manual way of testing.

Keywords—Arduino, Internet of things, Mobile Application, Sensors, Wi-Fi.

1. Introduction

The future of our internet is Internet of things (IOT) where all devices are connected to the Internet. And all the physical devices can be controlled through the internet. Internet of things can be foreseen to be – a worldwide network of interconnected object uniquely addressable, based on standard communication protocols [1]. Identified by a unique address, anyObject including computers, sensors, RFID tags or mobile phones will be able to dynamically join the network, collaborate and cooperate efficiently to achieve different tasks. . Including WSNs in such a scenario will open new perspectives. Covering a wide application field, WSNs can play an important role by collecting surrounding context and environment information. Key enablers for the IoT paradigm are: RFID and WSN. RFID is well known and established for low-cost identification and tracking. WSNs bring IoT applications richer capabilities for both sensing and actuation. In fact, WSN solutions already cover a very broad range of applications, and research and technology advances continuously expand their application field. However, the sheer diversity of WSN applications makes increasingly difficult to define-typical requirement for their use in IOT [2].

The IoT allows objects to sense or control remotely around the existing network infrastructure and creates an opportunity for direct integration of physical world into computer based systems, and results in improving the efficiency, accuracy and economic benefits to reduce human intervention.[3]The revolutionary advances of



Internet of Things (IoT) devices and applications have helped IoT emerge as an increasingly important domain for user development (EUD). [4]

This proposed system uses the IOT where the sensors are connected and are controlled through the smartphones. The Arduino is connected through Wi-Fi to pass the measure of the sensor to the mobile application

2. Motivation

At present, sensor application are done by chemical test or laboratory test, where the testing equipment are stationary and samples are provided to testing equipment. Thus the current system is a manual system with tedious process and is very time consuming.

When one person want to test the soil moisture or water purity the have to take the sample to the government department and stand in line for their turn and wait for days to get the sample tested.

In testing the use different chemical methods in the laboratory manually. Where it may lead to some errors and may not get the accurate data.

Currently peoples are still unaware of the Internet of Things. There aren't application to help the people to know the how Internet of Things works or user don't know the application of the IOT. Peoples aren't aware that the physical system can be controlled using phones laptops using Internet.

3. Proposed Approach

This proposed system proposes a Wi-Fi in Sensor-Based mobile application which is used for displaying the measure given by the sensors. This proposed system focuses mainly on providing the user friendly platform. The aim of the proposed system is to provide the security and scalability to the application.

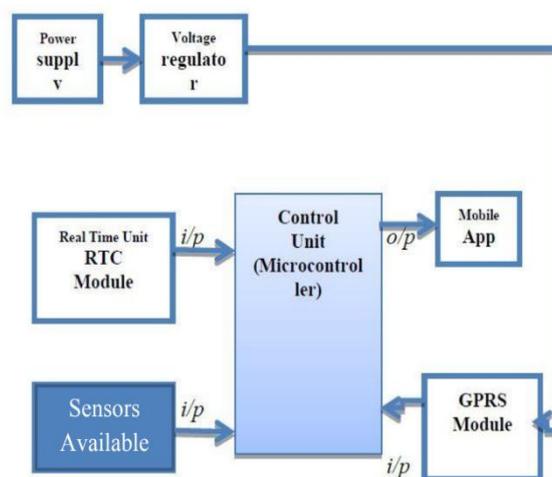


Fig:3.1 System Architecture

Our proposed system titled “Generic Mobile Application for Sensor Application using IOT” which is generic in services displays the measure of Arduino connected to Wi-Fi on Mobile. This proposed system also provides the



services depending on Arduino connected to mobile. This application helps user to display the contents or the measure given by the different sensor available.

3.1.Mobile Application (User Interface)

User Interface means by which the user and a computer system interact, in particular the use of input devices and software. The user interface (UI) is everything designed into an information device with which a person may interact[5].This module is for the user for seeing the values given by the user. It must be user friendly. People without the technical knowledge must be able to see the data. The mobile application is developed using the Android Studio. It access the data from the database where the Arduino send the data or measured value to the database.

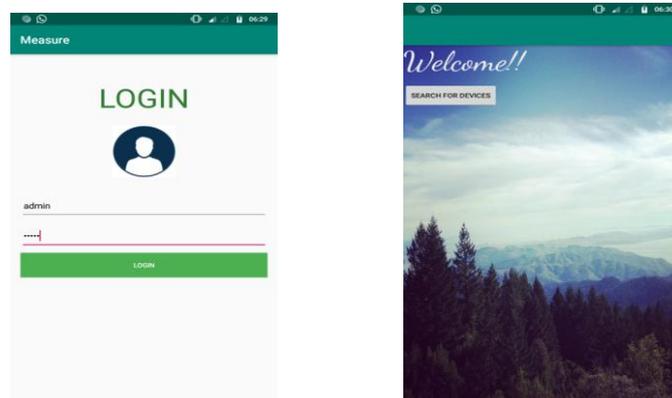


Fig: 3.2 User Interface

3.2.Arduino

Arduino is an open-source hardware and software company, proposed system and user community that designs and manufactures single-board microcontrollers and microcontroller kits for building digital devices and interactive objects that can sense and control both physically and digitally[6].

This module is hardware configuration where the Arduino different port are connected to different modules like Wi-Fi module or to power supply using the chords.We connect the sensors, Wi-Fi module to it using chords. We implement the code on Arduino using the Arduino IDE.

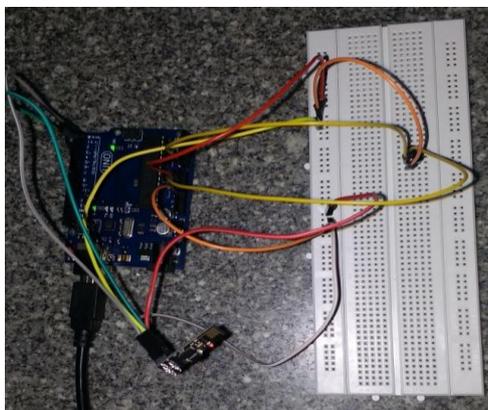


Fig: 4.1 Connection Implementation

The circuits that are linked to the sensors are remotely controlled over the Wi-Fi. Arduino mechanically takes the sensor information and returns to the database and Mobile App access the data from database with the required information.

Data flow diagram show how the data is flown in the working proposed system.

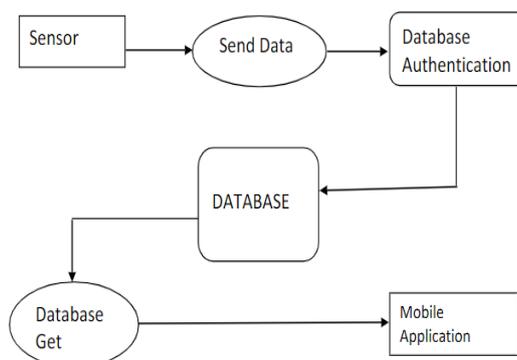


Fig: 4.2 Data Flow Diagram

5. Results and Discussion

As we know result is the final consequence of a sequence of actions or events expressed qualitatively or quantitatively [9]. Possible results include advantage, disadvantage, gain, injury, loss, value and victory. We know that after the implementation of the proposed system we get the value of the different sensors. We can manipulate the data easily from the database. Its advantage are: WIFI connection is advanced technology used to display the contents or the measure given by the different sensor available. Make the efficient way of connection over large areas.

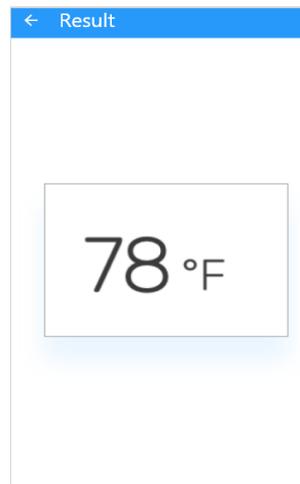


Fig: 5.1 Result Displayed in App

When we scan the devices then the result of the present sensors will be available as shown in above figure.

6. Conclusion

This system will enable user to use it as a base system to connect several types of devices having sensors to a single mobile application. This system will provide the user the user-friendly environment to perform different function like helps to display the measure provided by the users. It will make people use of Internet of Things domain. This proposed system will help to display the measure of sensors available on Arduino connected to Wi-Fi on mobile.

Basically by studying the existing system, the system we proposed is more suitable as it is generic and user friendly and displays the measure of sensors from the Arduino connected. This proposed system also provides services depending upon the Arduino connected. Using this technology the person can observe the data anywhere and can react quickly.

Future work

In future the app can be made more generic which can sustain more Arduinos and more sensors. We can implement more functionality in the application like old measured data can be shown to the user.

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