Design and Implementation of IoT-based Digital Notice Board using Arduino Uno

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ABSTRACT

In this paper, the implementation of simple and IoT based wireless notice board is presented. The proposed system uses Wi-Fi for communicating with cloud data base. The idea of digital notice board and it's working starts from pushing a message to cloud using an android mobile. At the received end aArduino Uno with a valid internet connection is setup is deployed and it is ready to receive the messages. Whenever it receives a new message it alerts the LCD display connected to it and it displays the message on LCD display.

Keywords: IoT, Arduino Uno, Notice Board,

1. INTRODUCTION

Smart phones are playing vital role in human life. They are easy to use, promising and durable devices that help in performing day to day tasks. Embedded systems using wireless technologies are widely used for communicating with peripheral devices. Implementation of the Wi-Fi based wireless communication for different applications are proposed in. Wi-Fi based wireless notice board has been developed. In this paper, the development of a simple and low-cost wireless Wi-Fi based notice board is presented. The proposed system uses either Cloud or Wi-Fi based wireless serial data communication in displaying messages on a remote digital notice board. IoT based Application programs available for Cloud and Wi-Fi communication for personal digital assistant (PDA) devices are used for transmitting the alpha-numeric text messages. Using the Cloud or Wi-Fi based serial data communication technique, the corresponding transceiver module has been interfaced with microprocessor board at the receiver end. For this purpose, a microprocessor board is programmed to receive alphanumeric text messages in any of the above selected communication modes. The proposed system will help in reducing the human effort, paper, printer ink and cost for manual changing of the notices.The simple and low-cost wireless IoT based notice board system is developed to remotely send the desired information instantly to the intended users using either Cloud or Wi-Fi transceiver modules interfaced with a low-cost microprocessor board. The communication mode (Wi-Fi) is selected for data communication using the corresponding transceiver module with the microprocessor.

Arduino Uno is programmed as a client using C software to receive the message from remote user either in Cloud and Wi-Fi based wireless communication technology The simple and low-cost wireless IoT based notice board system is developed to remotely send the desired information instantly to the intended users using either Cloud or Wi-Fi transceiver modules interfaced with a low costArduino Unoboard. The communication mode (Wi-Fi) is selected for data communication using the corresponding transceiver module with the microprocessor. Arduino Uno is programmed as a client using C to receive the message from remote user either in Cloud or Wi-Fi based wireless communication technology

2. PROPOSED SYSTEM

In this, serial communication is utilized to interface the cloud module with Arduino Uno board, which is employed by android application program that permits only particular device to communicate with the mobile for commanding the outside devices. Once there is an establishment of connection between IoT-based digital notice board and cloud, then a user can send alphanumeric text messages. Later, this message can be altered at any time by resending the new message by overwriting the earlier message which a user wants to display in notice board.

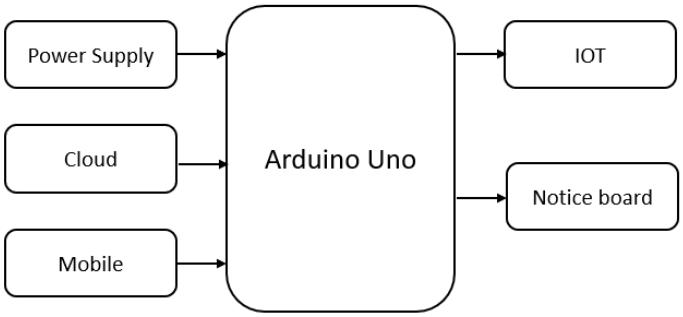


Figure 1. Proposed block diagram.

This works on Wi-Fi signals and the user can send data to notice board from anywhere in the world by accessing a valid internet from his device. Whenever they pushed a message, it is received by the Arduino Uno and processes it and then display the same message on LCD.

3. HARDWARE DESCRIPTION

3.1 IoT

IOT is a paradigm where the smart object or things are equipped with tools for identification, sensing, networking, and the information processing. This will therefore allow the objects to connect to one another and transfer information among them through the internet and other devices. Other concepts leading to the successful development of the IOT include the ability of the devices to send their data to the cloud through cloud computing.This has ensured that data can be captured anywhere by the smart object and be stored in the cloud thereby enabling the users to retrieve and access the data from anywhere thereby creating a smart, ubiquitous, and always-connected systems. With the use of objects that have unique identification and that can be given unique addresses as well as virtual representation in an Internet oriented structure, these smart objects such as the sensing devices or the actuators can provide the information from their surroundings and well as information about them and also be able to relay this information in real-time.These paradigms are further enhanced by the use of large-scale embedded sensing devices and actuators. With these objects having unique addresses and connected to the internet, this lets the objects to give the information about them to the internet and therefore be accessed easily and remotely by users. Since these objects are also able to sense their surroundings and relay the information across different platforms, they have become useful tools for solving the technological complexities and thereby enabling certain information about the environment be obtained automatically with minimal or no human interaction.

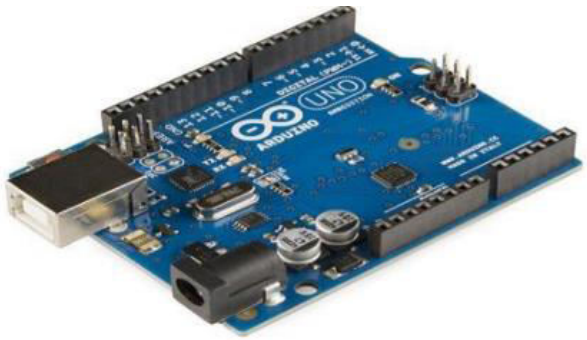


Fig 2. Arduino board.

3.2 Arduino

Arduino is an open-source electronic platform that is based on connection between hardware and software and it is easy to use and implement. They are designed in such a way that it read the input – water reaches a certain threshold and turn it into an output – sending the aler**t.**

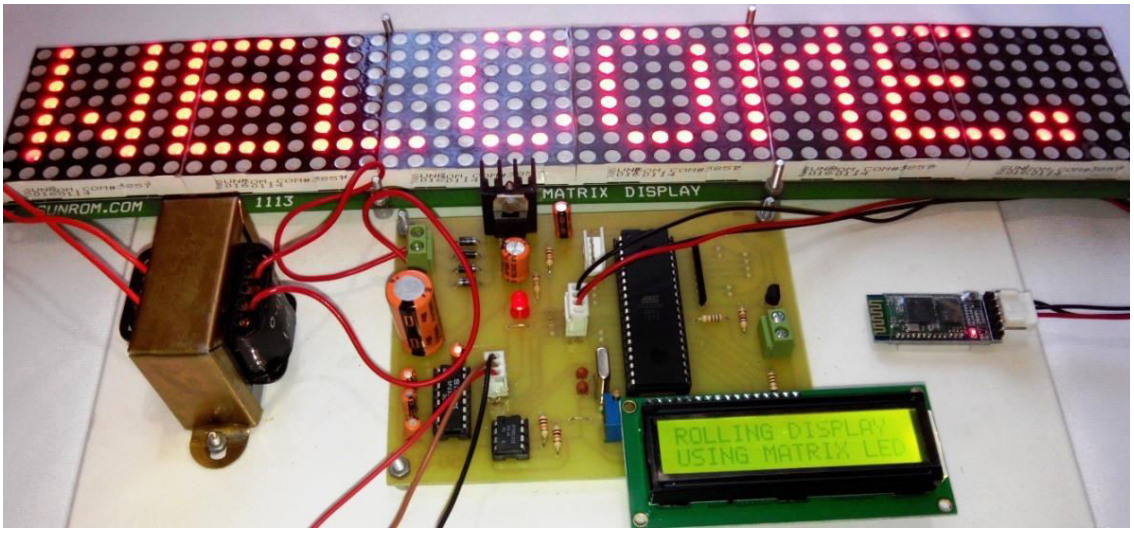
3.3Liquid Crystal Display

LCD is liquid crystal display technology works by blocking light. Specifically, it is made of two pieces of polarized glass that contain a liquid crystal material between them. A backlight creates light that passes through the first substrate. It is used for display purpose.

Figure 4. LCD display.

4. RESULTS AND DISCUSSION

Cloud storage is a data storage model where the data storage will be in logical pools.The physical storage pairs several hosts (probably numerous areas) and this environment is normally copped to and maintained by a hosting organization. These cloud renders are creditworthy for maintaining this data feasible and approachable with security. Practically, users or any companies will purchase or lease the capacity of storage from the renders for storing company, user or any application data.



5. CONCLUSIONS AND FUTURE SCOPE

This article implemented an IoT-based digital notice board which assist the organizations, colleges and malls in time and resources saving by providing the information availability the respective receiver. The proposed system is very easy and simple to utilize and is at low cost. In future, this can be extended to implement a voice message-based application which even doesn't require to type the text message.

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