

# IoT Based Digital Notice Board Using Raspberry Pi with Audio Alert System

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**Abstract** - Internet of Thing is the interconnection of uniquely identifiable embedded computing devices within the existing infrastructure. It also uses the wireless sensors networks which are group of specialized transducers with a communication infrastructure for monitoring and recording condition at diverse location. Notice boards primary thing in many places like institutions, public utility places i.e. Bus stops, railway stations, colleges, malls etc. but sticking various notices day to day is a tedious process and also a separate person is required to take care of it daily and manually. This project so about advanced wireless noticeboard. The main objective of project is ARM controller 11 raspberry pi which is heart of the system. Display is obtained on projector or LCD monitor. Wi-Fi is used for data transmission. At any time, we can add or remove or alter the image according to our requirement. At transmitter allocate PC or mobile is used for sending a notice or messages. At receiver side, Wi-Fi is connected to raspberry pi. All users would be notified about the notice being displayed with a sound alert. This project deals with the use of IoT and raspberry pi.

**Key Words:** Raspberry Pi card, electronic components.

## 1. INTRODUCTION

In these modern worlds, nowadays everyone need a comforting living life. Man has researched different technology for his need. In today's world of full of connected, people are becoming habitual to easy access to information. Whether the information is received various mode through the internet or television, people wanted to be informed and up to date with the latest events happening around the world. Wired network connection such as Ethernet has many drawbacks depending on the need and type of connection because wireless connection can interact with people easily and it requires less time. The main goal of the project is to construct an internet based graphical notice board system using raspberry pi that display message sent from the user, and it is simple to design, easy to install, user-friendly system, which can receive and display notice in a particular manner with respect to date and time so that the user can

easily access or know the latest notices or message.

## 2. Present Technology

Many states of the art and cutting edge universities in the world rely on notice board hanging on the wall to display announcements. The over reliance of this practice in a university is still no enough to pass relevant information around as many problems are encountered. We consider the case study of professional colleges where information is a vital keys for knowing the updates of the campus. The goal of this system is to provide the access to notice and articles quickly no only within the college premises, also wherever and whenever they need to know. Also, it looks at the development of the existing notice boards, making it run by the interest access or by local area network (LAN) or internet of thing (IoT).

## 3. Problem Definition

Mankind has always had a need for signs and notification at places and events, which ranges from meeting times and venues, to transport arrival and departure times. Such notification guide society on making informed decisions towards better lifestyle. While some notification used to be relayed through audio means by town criers in villages in the past, such methods are not suitable for towns and cities that have witnessed tremendous technology advancements. Also, few years ago, traditional notice board methods of physically sticking typed paper notices on wooden board waste resources.

## 4. Proposed System

Initially idea of this system which will enable people to wirelessly transmit notices on notice board using Wi-Fi. Here we have proposed a system by which only authorized person can handle the notice board. It requires less time due to fast data transmission through Wi-Fi. The system is based on the implementation internet of thing on raspberry pi. The raspberry pi is a basic embedded system and being a low cost a single board computer used to reduce the complexity of system in real time application. This platform is mainly

based on python.

#### 4. Proposed Work

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#### 5. System Configuration

The proposed system implements by using raspberry pi, internet of thing (IoT) and MQTT dashboard. Raspberry pi is a heart of the system. In this we has proposed a system which will enable people to wirelessly transmit notices board using Wi-Fi. Here we have proposed system by which any authenticated person can handle the notice board. It requires less time due to fast data transmission through Wi-Fi, less cost and save resources. Design and implementation pf digital notice board by using raspberry pi board. The application has been installed on as smartphone and raspberry pi card to display text on display device

#### Internet of Thing (IoT) -

An IoT ecosystem consist of web-enabled smart devices that are use of embedded system, processors, sensor and communication between hardware and software to collect, send and act on data they acquire from their environments. The IoT works with objects to be sensed or controlled remotely across the existing network architecture. The Internet of Things (IoT) can be described as connecting day to day objects like mobile phone, internet, sensor and actuators to the internet where the devices are linked together.

In our system there are two parts is transmitter and receiver.

Transmitter - Personal computer is used as a transmitter part. Only the authorized PC is use here.

Receiver- It consists of following section.

Wi-Fi module - Wi-Fi was a high performance and cost effective WLAN USB module. It connects the raspberry pi mini cost credit card sized computer to a Wi-Fi local area network. Wi-Fi is a technology for wireless local area networking with devices based on the IEEE 802.11 standard. It supports data rate up to 150 mbps and it covers the area ranges 20 meters LCD monitor.

It is a used display the notices or data of any from like text, images, audio voices and multimedia etc. Wi-Fi will check authorization of the user entry and raspberry pi card will convert the messages that will be displayed into LCD monitor.

Raspberry pi - The raspberry pi s a basic embedded system having credit card-sized single board computers. pi is based on the Broadcom BCM2835 system on a chip which includes an ARM1176JZF-S Core 700mhz CPU processor, Broadcom video core IV GPU having 17 pins,3.5W of power and 512 MB of RAM memory.

Speaker - speaker is also part of the receiver side, in our system it is used to receive the audio or voice from the transmitter side.

#### 6. Block Diagram

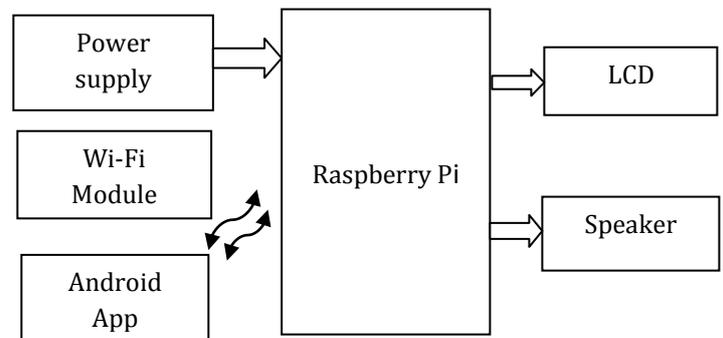
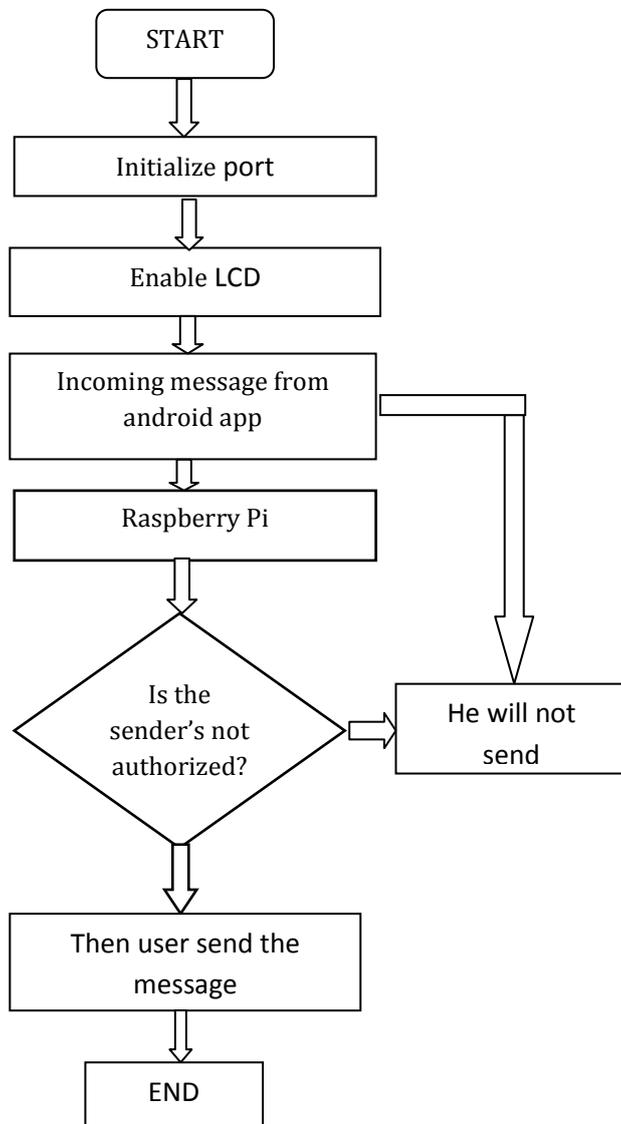


Fig. A

### 7. Algorithm



### 8. Software Requirement

**MQTT Dashboard** - MQTT is a publish subscriber based “lightweight” messaging protocol for use on top of the TCP/IP protocol, such as the Wi-Fi packets that we are using in the project. It is designing for connected with long locations where network bandwidth is limited. The publish subscribe messaging pattern requires message broker. The broker is responsible for distributing messages to interest clients based on the topic of a message.

**Python** - In contrast to other popular languages such as C, C++Java, and C#. Python provide a simple but powerful syntax. Python is used for software

development at companies and organization such as google, yahoo, CERN, Industrial light and magic, and NASA.

### 9. CONCLUSIONS

The purpose of the system to provide wireless notice board that display message sent from the user and receive, display notice is particular manner with respect to date and time. They will be help to user to easily keep the track of noticeboard every day and each time uses the system.

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