

# e-DISPLAY USING LOW POWER MICROCONTROLLER

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**ABSTRACT:** *This paper deals with an innovative rather an interesting manner of intimating the message to the people using a wireless electronic display board which is synchronized using the WI-FI technology (IOT). This will help us in passing any message almost immediately without any delay just by sending a message which is better and more reliable than the old traditional way of passing the message on notice board. This proposed technology can be used in colleges, many public places, malls or big buildings to enhance the security system and also make awareness of the emergency situations and avoid many dangers. Using WI-FI module the message is displayed onto the display board.*

**Keywords:** My MQTT, Node MCU, MQTT Server

## I. INTRODUCTION:

In this world Mobile Phones and the WI-FI are becoming more and more prevalent. Various technical areas in the field of IOT are becoming omnipresent in the people. The use of cell phones and internet has rapidly increased over the last decade and a half. Up gradation in networking technologies has encouraged the development and growth of very dense networks. Notice boards are one of the widely used ones ranging from primary schools to major organizations to convey messages at large. A lot of paper is been used and which is later wasted by the organizations. This in turn leads to a lot of deforestation thus leading to global warming. Small innovative steps in making use of technology for regular purposes would have an adverse effect on the environment issues which are presently concerned about. The main aim is to design a IOT driven automatic display Board which can replace the currently used programmable electronic display and conventional notice boards.

It is proposed to design to receive message in display toolkit which can be used from an mobile phone/computer. The whole process can be described from the transmitter and receiver section. The WI-FI module receives a message from the authorized server and the message is extracted by the microcontroller from the WIFI module and is displayed on the liquid crystal display board. Serial to parallel communication is used for the entire process from WIFI module to Microcontroller and from microcontroller to liquid crystal display.

## II. EXISTING SYSTEM:

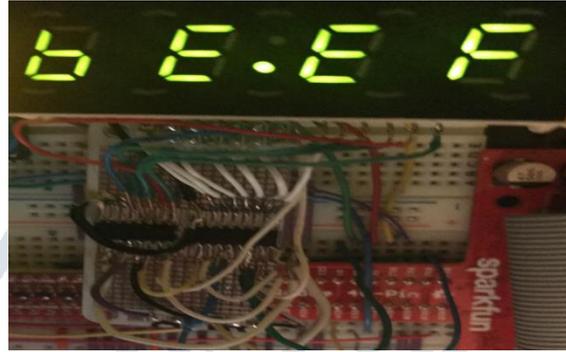
Intimating the message to the people using a traditional board is old fashioned and none are attracted due to rapid increase in technology in recent years. The old traditional way of pasting the message on notice board is not reliable. By using the traditional notice boards there is a requirement of human in order to change the information only for that purpose and there is also a delay in passing the information due to negligence of the human.



**Fig 1: Traditional Notice Board**

A lot of paper is been used and which is later wasted by the organizations. This in turn leads to a lot of deforestation thus leading to global warming. Those papers are to be stuck or pinned which takes an extra work and it becomes clumsy where the important information will be covered by other pages leading to loss of

information. The introduction of electronic notice board has replaced the traditional notice board but it is wired with huge connections. The wired notice board needs to be programmed by an operator through a computer for which it is connected. Notice boards placed at long distances from operator is hard to program as it is to be done through long wires placed from board to the computer. If multiple boards have to be connected then multiple wires with different operators are required for operating it. These wired notice boards are complex and consume more power and applicable for only shorter distances.

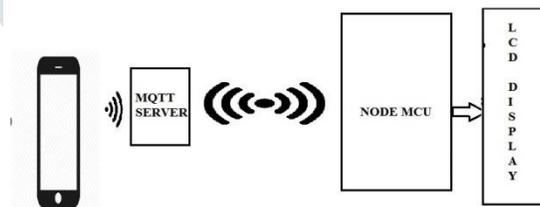


**Fig:2 :Wired Notice Board**

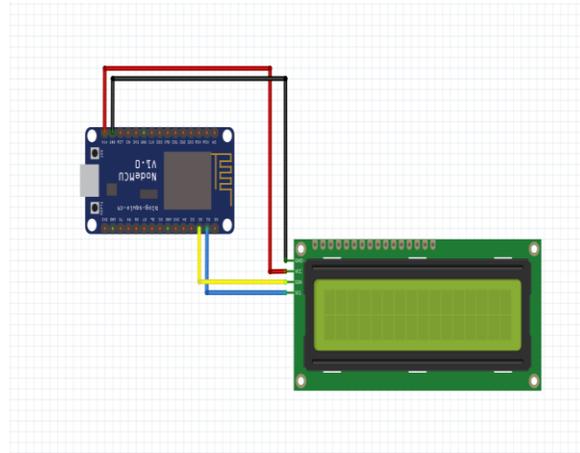
### III. PROPOSED SYSTEM:

This is the model of the wireless notice board using nodemcu and android application. The message sent to the server using MY MQTT android application and MQTT BOX windows application. MQTT (Message Queuing Telemetry Transport) is an ISO standard (ISO/IEC PRF 20922) publish subscribe based messaging protocol. It works on top of the TCP/IP protocol. It is designed for connections with remote locations where a "small code footprint" is required or the network bandwidth is limited. The publish subscribe messaging pattern requires a message broker.

The messages displayed on the LCD display based on the code which is dumped on to the NODE MCU board. Accordingly, the message is displayed in LCD which is received by the wifi module. The message can be sent through both mobile and computer from any place through the cloud for any display based on the subscribed topic. The block diagram of the proposed system and Schematic Representation is shown in the figure3 and figure4.



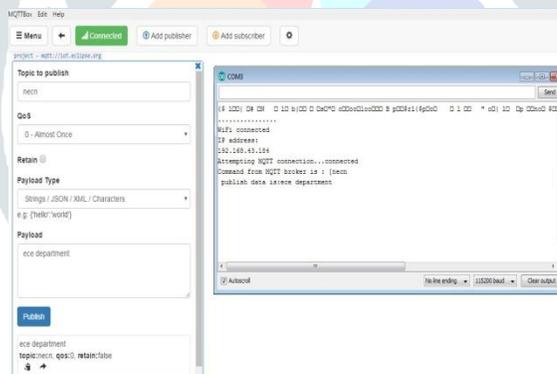
**Fig 3: Block Diagram**



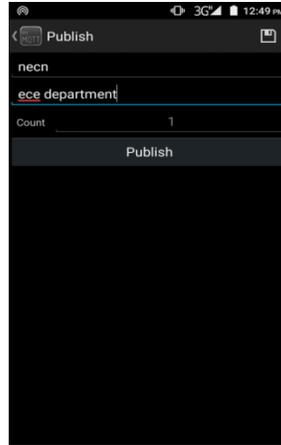
**Fig 4: Schematic Representation**

#### IV. RESULTS:

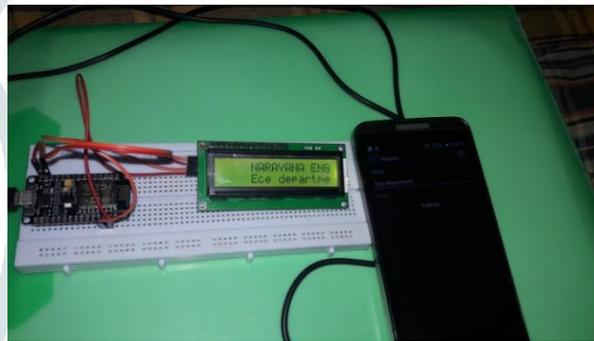
The proposed design deals with updating of information in notice board from any part of the world for this design uses wireless system WI-FI to send the data to Micro Controller. Earlier there were traditional notice boards in which the consumption of paper is more and updating of information is delayed, so that electronic notice boards were developed which are operated using a wired network due to rapid increase in technology the proposed system wireless notice boards were developed. To operate this wireless notice board we used a microcontroller which is capable of receiving data from the cloud. An open platform server is used to transmit the data and this server is updated through android mobile application and also by windows application. The data transmitted can be checked in the serial monitor of arduino IDE and also on the application used. We used a low power microcontroller so that it consumes a less power when compared to the other microcontrollers.



**Fig 5: Windows Application With Serial Monitor**



**Fig 6: My MQTT-Android Application**



**Fig 7: working model of the proposed system**

## V. CONCLUSION

As the technology is advancing every day the display board systems are moving from Normal hand writing display to digital display. Further to Wireless display units. This paper develops a photo type laboratory model wireless notice board system with WIFI connected to it, which displays the desired message of the user through an message in a most populated or crowded places. This proposed system has many upcoming applications in educational institutions and organizations, crime prevention, traffic management, railways, advertisements etc. Been user friendly, long range and faster means of conveying information are major bolsters for this application. By using this proposed methodology can enhance the security system and also make awareness of the emergency situations and avoid many danger.

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