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GSM Based Led Scrolling Display Board

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Abstract: ***In this paper we are dealing with an innovative idea of displaying the message to the people on LED display using GSM technology. The project is based on the idea of the wireless communication between a mobile phone and a display board. This model combines the advantages of the microcontroller and wireless technology to build an effective and secure communication system.***

The information sharing aspect of Information Technology is playing a prominent role in all kind of business either it's a NPO or Profit organization. Information technology makes the advertisement methods more technical and effective as it is easy to transmit and share information. Scrolling LED dot- matrix display boards are used at International Airports, Stock Exchanges, Metro rail stations, shopping complex etc.

Keywords: GSM modem, LED display, Microcontroller.

I. INTRODUCTION

In this modern world Mobile Phones and the related technologies are becoming more and more prevalent. The use of cell phones 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.

'GSM based LED Scrolling Display Board' is a model for displaying notices/messages at places that require real-time noticing, by sending messages in the form of SMS through mobile. It is a system where in the display board need not to be reprogrammed to display a new message because it is wireless[3]. In this project we develop a moving sign board which empowers the authorized user to change the scrolling message using SMS service instantaneously unlike a desk bound device such as PC or laptop. The SMS is deleted from the SIM each time it is read, thus making room for the next SMS. The message system is password protected so that only authorized person can change the message which has to be display on LED matrix.

The GSM modem receives a message from the authorized mobile phone and the message is extracted by the microcontroller from the GSM modem and is displayed on the LED display board. Serial communication is used for the entire process from GSM module to Microcontroller and from microcontroller to the LED display. The three devices are powered by the same power supply. Notice boards effectively tackle the global problem of deforestation by conveying messages at large without the use of paper. Such innovative measures will go a long way in regulating the damage to the environment. GSM technology aims to reduce the complexity in sending a message by incorporating SMS (Short Message Service) technology.

II. CONCLUSION

The project explains that how we can develop GSM based led scrolling board, by integrating features of all the hardware components used. Presence of every module has been

reasoned out and placed carefully, thus contributing to the best working of the unit. The scrolling board successfully displays the message word by word. The speed of scrolling is controlled using software. The major constraint of flicker and intensity of LEDs is eliminated by the use of high frequency crystal.

Due to the use of multiplexing technique, power dissipated by the LEDs is low. Greater efficiency is achieved by using the concept of wireless communication. The model can be efficiently used in restaurants to display the menu, at railway station in case of cancellation of trains, in educational institutes for faster communication of notices or messages, banks and bus stands.

The system can also be employed in hotels, rooms in cases of emergency. The major advantage of this model is that the person can change the message at any point with no constraint of distance. There can be latency involved in delivering the message to the GSM modem and hence it is advisable to use a high standard modem with good range capability (use of better antenna).

III. PROBLEM STATEMENT AND PROPOSED METHOD

LED display is an effective mode of displaying information but the complicated task is to make the messages dynamic as the user have to change the message content according to the specific requirements. In case of changing the message content the user have to connect the LED board with the computer, so that the display board cannot be placed anywhere because of dedicated & complex wiring pattern. The method should also be secure.

Suppose the same message if the person want to display in main centers of the cities, means he has to go there with laptop and change the message by connecting into PC .This system is also useful mainly for police or army .i.e. displays will be connected to all the main centers in city if they want to display messages about something crucial within 5 minute, which they cannot. But, we used this system in college for student and teacher convenience using this GSM based system HOD or T&P department display message about any notice. So keeping this in mind a new display system which can be accessed remotely, using the GSM technology to make the communication between microcontroller and mobile was designed.

The aim of this project is to develop a moving sign board which empowers the authorized user to change the scrolling message using SMS service instantaneously unlike a desk bound device such as PC or laptop. . The SMS is deleted from the SIM each time it is read, thus making room for the next SMS.

IV. FUTURE DEVELOPMENT

- ✓ A commercial model can be able to display more than one message at a time.
- ✓ We can provide voice feedback system
- ✓ This technology could be further modified and more upgraded as per individual need and interest. We have discussed some basic ideas of this technology. And depending on innovative applications user can upgrade as per requirement.

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