CHAPTER 1

INTRODUCTION

1.1 Background

In this fast expanding technological world, information is being transfer into many types and form. Each and every of them convey information by its specific need, like a mobile phone transferring real time data during calls or computer server that store massive data that can be excess throughout the world in a blink of an eye. As for this device, the information is being visually transmitted from the dot matrix display straight to the viewers.

This report will elaborate in all the necessary design and the creation of the remote programing device for LED display using an android OS system interface which includes the following component: smartphone, LED display, Bluetooth module, arduino microcontroller and a basic circuit. The project is aimed to be used as an alternative way to program the LED display to ease the user the trouble to bring the display panel down from its usually high positioned place to the point that the LED display can be program from afar as the Bluetooth range can support.

An LED display device is commonly used to display information on various things like clock, advertisement sign and railways departure indication. For this project, is it to be used a several dot matrix LED display to display the desired output that is received from the smartphone through the Bluetooth connection between them.
The aim for this project is to design a working LED display that can be used and be program by any smartphone user using an android interface with an application specifically develop to use the Bluetooth capability of the phone and communicate with another Bluetooth module thus remotely program the LED display.

1.2 Problem statement

The most common problem using the LED display comes when to reprogram it. From the complexity of the LED display driver itself to the tedious work of getting the display down and putting it back up. There is also the probability to damage the display driver if the wrong programing code is placed in them and the accidental damage while working with the fragile display.

Several method have been made to combat this problem and perhaps to most popular method is to use wire or just placing the display at easier height but the method would rather cause more down side than the benefit it brings. The usage of long and thick wire may not be suitable is most scenario and by placing the display at lower height it could drastically hinder the amount of visibility viewers can get from the display.

Thus by using a remote programing device for LED display using an android OS system interface can greatly ease the user and end the manual labor need to reprogram an LED display.
1.3 Objective

In this research, the objective is to design the mean to wirelessly transfer serial data from an android phone to send new text message for the dot-matrix to display.

(i) To create an android application that able to access the Bluetooth capabilities in the phone module.
(ii) To control an Arduino using an android OS interface through a Bluetooth.
(iii) To be able to reprogram an LED dot-matrix display.

1.4 Scope of Study

In this research, the following works are to be completed

(i) Develop an application for android using programing software
(ii) Identify and study the component required to establish the bluetooth connection
(ii) Analyze the possible method of coding that enable the remote programing to be done.