

## CHAPTER 1

### INTRODUCTION

#### 1.1 Background History

Since the prehistoric times, people are trying to figure out the reliable way to locate where are they especially for Muslim, in order to guide them to know the prayer time. Cavemen use the sun, moon or stars as reference where they are. The next person will follow the previous position. The next development for the perfect method is magnetic compass and sextants. The needle of compass always shows the north point as the reference whereas sextant use adjustable mirror to measure the angle of sun, stars and moon. However, all of them show only the latitude not the longitude.

In the early 20<sup>th</sup> century, the radio-base navigation systems were develops, which were widely used in World War II. There were two choices for it whether use the low frequency radio wave that can provide wide area but not accurate or high frequency radio wave that can provide the accuracy but not covered wide area. At present, the only system able to show the exact position on the earth anytime, anywhere and in any weather is Global Positioning System (GPS). It is widely used as tool for collecting the spatial data. The important sources of spatial data are the already existing digital files, maps, which can be digitized and more recently GPS. It can be used to determine the location of something in this world by giving the data of longitude, latitude and altitude.

## **1.2 Aim of the Project**

This system is designed to improve the previous system which is needed to put the location of place manually in the calculation method of pray time system. The aim of the project is to fetch the spatial data from satellite which is received by GPS Receiver Module and send it into microcontroller to calculate the prayer time and display the time via LCD screen. It is to serve as comprehensive way to get the real pray time for Muslims especially who are need to work outstation and also for those who are like to do activities out side their countries. With automatic reload location (latitude and longitude) by using the GPS module, there is no need to worry about the prayer time anymore.

## **1.3 Objective**

- To develop a system that can calculate a pray time based on longitude and latitude
- To develop embedded pray time system or using microcontroller
- To display pray time on LCD screen

## **1.4 Problem Statement and Scope of Study**

Pray time is a crucial time for Muslims in order to show their respect to The Almighty. So, they are trying to find the easiest way to calculate the time of pray based on the position of the sun. Some of them develop software for mobile phone, software for PC and create prayer azan clock to fulfill the requirement of knowing the prayer time easily such as discussed in the literature review in the next chapter.

### **1.4.1 Problem Statement**

In prayer time system, the real-time information is the main ideas. Many of the development system nowadays are to calculate the prayer time, determined by manual longitude not the automatic load such as using GPS. Its mean that people need to know the longitude everywhere they are going and then they will know the pray time. Nevertheless, the problem still exists. They are prone to human errors (unintentional and intentional), higher cost and absence of real time monitoring and regulating.

By developing this project, it can surpass many problems. It can give the accurate location without worrying the where is the place and the weather. Small in size, people can carry it out wherever they go. It gives an advantage to the Muslims who are like to travel from a country to another country. They are no need to worry about the difficulty of knowing prayer time because it automatic load and calculate of prayer time system. They can receive the information of prayer time by LCD display. So that, we are surely know the prayer time precisely and it can improved the system that was research and develop before.

### **1.4.2 Scope of study**

The researches for calculation of pray time is widely done by Muslims in this world. There are several of methods found. In order to minimize the research area or the project has been narrowed to specific area which is embedded pray time system using GPS module. This project is about to display the prayer time via LCD screen which is calculated automatically using microcontroller. The position of the user is known by using GPS Receiver Module. The longitude and latitude data from the receiver is used in the calculation of the prayer time and it occurred automatically.