MENU DEVELOPMENT FOR PORTABLE QIBLA FINDER USING GPS

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ABSTRACT

Portable Qibla finder using GPS is a device specifically to show the user the location of Qibla, which Muslims needs in order to perform prayers. Normally, people use a compass to determine the Qibla direction but in today developing era, there are so many thinkable solutions. This project intention is to design a portable Qibla finder using GPS. The menu development of the portable Qibla finder using GPS depends on the source code appended into the PIC16F877A microcontroller that acts as the brain of the whole systems which consists of 5 modules which are the power supply module (5V DC power supply for operation), GPS module, controller unit module (PIC16F877A to store command), GLCD module (displaying text and graphics) and also the input module (tack switch for the navigation purposes). MPLAB IDE and PROTEUS VSM is used for assembling and debugging purposes. This project consists of 5 chapters by which each chapters begins with the introduction, followed by interpretation that associate with each chapter's scope. Chapter 1 exhibits the overview of the project that includes the problem argument, significance of the project, the objectives of the project and a glimpse of the scope of work. Chapter 2 cover the literature review of the project. All the components and softwares used in the project such as the PIC 16F877A, graphic LCD, IC78L05, IC7660, MPLAB SOFTWARE and Proteus are explicate in details. Chapter 3 is focusing on the methodology, by means the software design in constructing the source code for the menu. Chapter 4 emphasis the results, together with discussion for each results obtained throughout the completion of this project. The final chapter, chapter 5 will consists the conclusion and the future development of the project.

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CHAPTER 1

1.1 INTRODUCTION

Qibla (قبلة, translated as Qiblah, Kibla or Kiblah) is an Arabic word for the direction that should be faced when a Muslim prays but it has importance to more than just prayers. Qibla plays an important part in every day's life. For reference point, the Qibla is the direction of the Kaaba. In today modern era, people always travel either due to job circumstances or for vacation purposes and as for Muslims, it is important to know the direction of the Qibla from their location, to perform prayers. In ancient times, Muslims traveling abroad used an astrolabe to find the Qibla. [1]

A global positioning system (GPS) is a network of satellites that continuously transmit coded information, which makes it possible to precisely identify locations on earth by measuring distance from satellites. GPS navigation becoming more common and with a GPS unit, people can find their way easily because they know where exactly, on earth, they are located at. There are two things that a GPS receiver has to know. It has to know the location and distance of the satellites. The GPS receiver will pick up two kind of coded information from the satellites called "almanac" data and "ephemeris" data in order to know the position of the satellites at all times. [2]

A microcontroller contains it own program code memory, data storage memory, bi-directional (input/output) ports and a clock oscillator and can be programmed to perform many functions. [3] Therefore, it will make a design more simple and allows some functions to be performed. PIC are manufactured without program codes. The commands, also known as "source code", will be assemble using assembly program.

Liquid crystal display (commonly abbreviated LCD) is a thin, flat display device. [4] Graphic LCD (GLCD) display unit were embedded with a controller as well as the column and row driver. The GLCD needs to be programmed in order to make it function (i.e. to display words or pictures or even both).