

ABSTRACT

The title of the project is given as “Automatic Giant Wheel Controller”. As stated as the title, this Giant Wheel is specially designed as an enhancement of the existing Giant Wheel. It is fully automatic system, where its direction and the speed of rotation are fully controlled using microcontroller. Besides that, its chairs also have their own control board and able to swing in multiple angle and speed according to user preference. The chairs no longer are standalone subsystem but with inspection through wireless transmission. For safety purpose, the emergency stop is added in and will be activated as the chairs are swinging high and the wheel is rotates in high speed.

In order to design this project, 3 main topics are included as a background reading. There are Stepper Motor, Digital Transmission using wireless communication and microcontroller. In this project, stepper motors are chosen as it will rotates in fixed angle at each input. It is very suitable used as its rotation behaviors has direct relationship with the input pulsed given. Besides stepper motor, digital transmission also includes as digital data has to be sent/ received by microcontrollers. Last topic would be microcontrollers as they are used as stepper motor controllers in this project. All the circuitries have been included and discussed in Chapter 3. The result of the experiments are also included in Chapter 4.

During the designation process, there are several problems encountered. The main problem in contribution of this project would be lack of knowledge in programming of PICs. This problem cause a serious delay of the project schedule as learning and troubleshooting processes take longer time of completion. Minor problem is out of stock of needed material (transceiver) as replacement and modification of system can be done in order to achieve the project outcomes.

As conclusion, Automatic Giant Wheel Controller is built according to the project aims and objectives. A more attractive and safer Giant Wheel can be constructed as improvement can be done in several areas such as multiple swinging and safety features.