STADIUM'S WIRELESS CONTROL SYSTEM USING GLOBAL SYSTEM FOR COMMUNICATION (GSM) AND ARDUINO CONTROLLER

By

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ABSTRACT

This report presents a project of control system for stadium which used Arduino UNO and Arduino Mega as the controller and GSM as the wireless control device. Servo motor used in this project is to move some of the parts like door lock, roof and etc. This project use Arduino IDE software which is designed for the Arduino controller. All operation systems are controlled through message and all orders were written by programming. Analysis to test the effectiveness of this system against range between transmitter (handset) and receiver (GSM and Arduino) has been done. Five different ranges were used which are 2 meter, 5 meter, 10 meter, 50 meter, 100 meter and 1km and were tested at three different places which have different signal strength. The effectiveness of this system can be seen from the time taken by the system to operate when it has been given orders. Stop watch was used to record the time. From the analysis, this system does not affected by distance but it is strongly dependent on signal strength.

TABLE OF CONTENTS

CHAPTER 1

INTRODUCTION

1.1 STADIUM'S WIRELESS CONTROL SYSTEM

This project is focused on the development of stadium's control system which specifically referring to the stadium in Malaysia. This project also focused on hardware and software to control the stadium parts such as door, light, scoreboard, and the addition of automatic roof. The automatic roof system is not yet implemented in Malaysia[1] and it will be quite interesting if such as system is implemented. Fast position servo systems require rapid acceleration and deceleration capabilities from the motors[2].

This project has two parts which are software and hardware development. Hardware part is about the components, devices, mechanism and also model of this stadium. Each of the hardware parts will be designed first in detail before it is constructed. For example, the most critical part of the stadium which needs to be made properly is automatic roof. It is heavy and need a strong mechanism to support it. So, the weight of the roof, size, angle, force needed to move it, need to be calculated precisely.

The software part is about the controlling system. Each part of this stadium will be controlled by Arduino Uno and Arduino Mega controller. For wireless signal transmitter, GSM will be used. This GSM will be interface to the controller using handset, model N82. This project use Arduino IDE software which is designed for the Arduino controller use. All operation system will be controlled by message and all of order was written in programming.