

FOOTBALL PLAYING ROBOT

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ABSTRACT

Nowadays, robotic had been know in the reality. A lot of manufacturing company started to use robot to process their machine instead of allowing human to run it. It can use to reduce the cost for hiring labour and improve the efficiency for the process. Robot already become an important role in our life, not only capable to handle a huge tasks, it can also perform very well and more efficiency than human. In addition, the military are also using the robot to do some dangerous tasks, such as removing the bomb, detecting the landmine and etc. Hence, robot is very common in human life now. They also try to add on the robot into our daily life; try to make the life easier.

This project is about to design and build an autonomous robot which is able to kick or push the ball and avoid the hindrance. It will also try to kick or push the ball into the goal post. The keys of this project are the motors, sensors and the control system. The vehicle requires a robot leg to kick or push the ball and the motor to move around the field. Sensors features are very important which required detecting the ball and the obstacle in front of it. Microcontrollers were used to act like the brain of the vehicle for controlling the movements of the vehicle and the robot leg.

This project is using an analog distance sensor as an object detection module, it is used to detect the ball and let the robot to move toward to the ball. There also have 2 IR sensors on the two of robot, it is used to detect the hindrance and let the robot to avoid it. This robot will use the 16x2 LCD screen to display the distance between the ball and the robot. L293D motor driver is used to control the movement of vehicle and the PIC16F877A as the main controller. Furthermore, there are two types of server motor which are implemented in the robot leg and the movement of the vehicle.

Overall, the aim of this project was achieved successfully. This project went in the plan as shown as the Gantt chart in appendix. All the motor and robot leg are able to perform as required tasks. This report will be explained with the details of the whole system of the robot, hardware and software implementation, block diagram, flow chart and etc. It allows having a better understanding about the Football Playing Robot.