

**UNIVERSITI TEKNOLOGI MARA**

**SMART DETECTION BALL OUT OF PLAY  
USING INFRARED SENSOR**

**MUHAMMAD ANIQ ABQARI BIN RAHIZAD**

**Thesis submitted in fulfilment of the requirements for Bachelor of  
Information Technology (Hons.) Faculty of Computer and  
Mathematical Sciences**

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## STUDENT DECLARATION

I certify that this thesis and the project to which it refers is the product of my own work and that any idea or quotation from the work of other people, published or otherwise are fully acknowledged in accordance with the standard referring practices of the discipline.

*Aniq Abqari*

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MUHAMMAD ANIQ ABQARI BIN RAHIZAD  
2018440924

JULY 11, 2020

## ABSTRACT

The lack of decision making that referee made during football match is becoming unsatisfied game or biased game. The problem on how decision made by referee when come to error in football had be issues that being debate. The issues that make player or fans did not satisfied when referee make decision such as the goal or no goal, penalty or no penalty, direct red card, and mistaken identity. There is a way to solute the problem by using technology in this era. This research focusing on the ball out of play by developing a prototype for ball out detection. The method that has been used was IoT (Internet of Things) for detecting the ball. The development tools that been used were hardware and software such infrared sensor, LED, NodeMCU, Adode Dreamweaver, and Arduino IDE. The development was shown which section ball out and alert referee by light up of LED. This reaserch was based on data obtained from a survey questionnaire that being distribute to expert in football and fans of football regarding the ball out of play. The data on which section ball out of play was store in database for future analysis. The research suggested that this development need to perform in real world so that the quality game of football is guaranteed. The results of the study also suggested that applying more function for improvised the development for football. It is hope that the study can contribute to the improvement of decision making by referee when come to ball out or other error that player made.

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