

IoT-Based Laboratory Safety Monitoring Camera Using Deep-Learning Algorithm

Abstract

The monitoring system available in the market currently does not come with detection of clothing that abide to the safety standard. The purpose of this project is to develop, analyze, and evaluate IoT-based laboratory safety monitoring camera using deep learning algorithm. This project is developed base on the System Development Life Cycle (SDLC) model. In which there are five steps to be taken which is analyze, design, develop, implement, and evaluate. The OpenCV library for Python is used to develop the programming of the PPE detection algorithm and the system also integrates the element of IoT which is developed using the platform Telegram to send notification. Technical analysis was conducted for the circuit, detection algorithm, and notification system before the project was handed over to expert for evaluation purposes. The project was evaluated by three experts that have expertise in the field of electric and electronic using the checklist instrument from the aspect of design, necessity, and functionality. The findings of the response by the expert show that it was very positive towards the project objective and it can be more optimized by expertly trained algorithms. This can increase the amount of individuals being monitored and further modify the project so that it could be used on any environment to control the door remotely.

Keywords

Deep learning; IoT; OpenCV; Raspberry Pi; Safety monitoring