

Suspicious activity trigger system using YOLOv6 convolutional neural network

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ABSTRACT

Property theft is one of the crimes that increases in which leads to a major concern in Malaysia. Despite of having surveillance cameras (CCTV) everywhere, the crimes keep occur due to the lack of security system. The security system can be developed by utilizing the existence of CCTVs specifically home surveillance CCTV. Therefore, this paper introduces a security system known as Suspicious Activity Trigger System (SATS) that able to automatically trigger an alarm or an alert message whenever suspicious activity is detected from the CCTV video image. The activity will be detected in a video image using Deep Learning technique which is YOLOv6 Convolutional Neural Network (CNN) algorithm. The algorithm will detect an object which is a person in the video and classify it as a suspicious activity or not. If the activity is classified as the suspicious activity, the system will automatically display a trigger message to alert SATS user. The user can therefore take whatever appropriate measure to prevent being a victim. Experiments have been conducted using a dataset taken from Google Open Image. We also implemented the experiments on the self-obtained dataset. Based on the experiment, 92.53% for precision and 96.6% of the accuracy is obtained using this algorithm. Therefore, YOLOv6 can be implemented in the security system to prevent crimes in residency areas.

KEYWORDS

Deep learning; Machine learning; Object detection

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