

ABSTRACT

Surveillance cameras called CCTV (Close Circuit Television) is usually required to monitor security at one location / house with a security officer who will focus on the monitor or using the storage media to save the recording camera. Usually, that surveillance cameras placed at home using the video recording on the camera, because monitoring events of in the camera by the security officer is not very effective. For that, necessary to a system that can recognize foreign objects in the camera and direct notification / notice the homeowner.

In this research a foreign object detection system implemented on the webcam that is built using C++ and uses face detection and face recognition are then integrated with the SMS gateway. Face detection using Haar Cascade Classifier contained on the Open CV library is used to recognize a face or not face. While face recognition acts as an recognition the detected face on face detection using the Eigenface. Then the face is not recognized by the system will be connected to the system and give notification using SMS gateway.

The results of this research are testing the system performance, it is known that the performance of face recognition systems in real time the video reaches the highest level of accuracy when Threshold = 35 with an accuracy rate of 91.43% and the average computation time 2124.94 ms. As for the highest performance of face detection system is achieved when using the Haar Cascade reached 87.14% accuracy rate at a distance of ± 30 cm and 70% at a distance of ± 3 m with an average computing time at a distance of ± 30 cm is 204.99 ms, while the distance of ± 3 m was 325.09 ms. The design is expected to utilize all available resources effectively and efficiently can be an alternative security system.

Keywords: CCTV, *OpenCV*, *Eigenface*, *Haar Cascade Clasifier*, *SMS Gateway*, *face detection*, *face recognition*.