

ABSTRACT

Technology on security system developed very fast, such as CCTV is important security system where used as surveillance system. Security system like this is already used in many places like bank, warehouse, office and housing. But if we use surveillance system on empty room with saved recorded it is not effective if we have to watch the empty room. With image processing technology we capable to build security system where surveillance camera can detect motion in real time and send alert or notification to user mobile device.

With using IP camera as surveillance system, author was built surveillance system and implemented motion detection on IP camera. The IP camera will save captured frames while detecting motion to cloud storage and then notification will be delivered to user mobile device. Author was built motion detection system using optical flow algorithm. Where frame was produced from optical flow algorithm will compared with previous frame. If exist frame different on that two frames, then system will be identified as motion. The used step on this motion detection is pre-processing, optical flow and thresholding on pictures.

Result from implementing motion detection system is successfully detect motion on surveillance camera and result from system saved on cloud storage along with sent notification to user mobile device. The amount of test result for accuracy (percentage correct classification) point is 83%, amount of true contour detected (True Positive Rate) is 0.96, amount of precision (F1 score) is 0.85 and amount of system failure (False Alarm Rate) is 0.22, also amount ratio of successfully notification system is 98%.

Keyword: *surveillance camera, image processing, optical flow.*