

ABSTRACT

Detection of objects in digital image processing is a process used to determine the presence of certain objects in a digital image. In detecting this object using a dataset created with a FLIR (*Froward Looking Infrared Thermal Infrared*) camera. In these conditions the thermal camera is better at detecting because the thermal camera captures heat radiation from the object to be detected. At night or in a dark place pedestrians will be difficult to detect. The recommended solution for tracking pedestrians in total darkness can use thermal infrared cameras to facilitate surveillance and increase security, it is important to detect unauthorized people, suspicious movements at national borders.

The method using FLIR (*Froward Looking Infrared*) can be used in dark or low light conditions. This research is expected to produce a good comparison of object detection based on distances of 10 meters, 15 meters, 20 meters and the methods used are *Spatial Regularized Discriminative Correlation Filters* (SRDCF), *Multi-layer Convolutional Features for thermal infrared tracking* (MCFTS), *Discriminative Scale Space Tracker* (DSST).

Based on the research, with 1684 input images there is good performance for each success plot distance in the SRDCF method at a distance of 10 meters with a success plot of 99.62% and SRDCF at a distance of 15 meters with a success plot of 100% at a distance of 20 meters. The SRDCF method gets the best results on the success plot because the predicted bounding box value from the predicted groundtruth value is not much different from the groundtruth value. Good performance for each plot precision distance at a distance of 10 meters, the SRDCF method obtained 89% results, for a distance of 15 meters 91.21%, and for a distance of 20 the SRDCF method obtained a plot precision of 91.41%. The SRDCF method using Location Error Threshold 10 gets the best plot precision results at every distance, because the smaller the Location error value, the smaller the error tolerance in the image.

Keywords: *DSST, Computer Visio, Matlab, MCFTS, SRDCF, Thermal Infrared*