

## **Abstract**

Public roads are environments that are traversed by various objects in a particular set of activities. Of course, this is an attraction for researchers to pay more attention to the classification of objects for the safety and comfort of public road users, especially when there is minimal sunlight. Lack of lighting at night which complicates object classification brings technology to the demands of renewable system applications, one of which is the classification of systems on objects with thermal images. Therefore, a design in the form of a thermal image object classification system was built on public streets using the Convolutional Neural Network (CNN). This object classification uses object detection in realtime with a dataset of several pictures taken on public roads at night using a thermal camera. The results of the data test produced several models that compared the detection reliability. From the results of data classification analysis obtained an object detection accuracy level of 76%.

Keywords: *convolutional neural network, deep learning, thermal image, image processing, you only look once.*