ABSTRACT

Image processing is a field that is developing very rapidly along with the development of technology, this is due to the many applications of image processing in human life that aim to streamline human work. This research is an implementation of image processing to detect victims of natural disasters with the aim to facilitate the Search and Rescue (SAR) team in rescuing victims of natural disasters in areas that are difficult to reach or isolated. This system uses branches of computer science, namely Computer Vision and Object Detection. This study uses a raspberry pi micro computer that is affixed to an unmanned aircraft (UAV) to look for victims of natural disasters.

The system in this study can detect victims of natural disasters in various positions such as sitting, standing and lying down, and requiring adequate lighting to be able to detect victims of natural disasters. This system uses the Convolutional Neural Network (CNN) method as a method used to extract features and classify the characteristics of an object. After detecting disaster victims, the system will take pictures and the location of coordinates Global Positioning Systems (GPS) to the disaster post using the Delay Tolerant Network (DTN) network. But the location of the coordinates sent is the coordinate of the system, not the coordinates of the victims of natural disasters, but because the radius of the camera is limited, the victim will be not far from the coordinates of the system. The parameters tested in this study are detection distance, UAV speed, and accuracy in detecting.

In this research, the best distance to detect objects is at a distance of 7 m UAV with an accuracy of 93.3% and the best UAV speed to detect objects is at UAV speeds of 50 cm / s and 200 cm / s with an accuracy of 86.6%.

Keywords : *Image Processing, Object Detection, Computer Vision, Convolutional Neural Network, Delay Tolerant Network, Global Positioning Systems*