

## ABSTRACT

To maximize the use of current technology, the author creates a mapping system for the pattern of distribution of people in the room based on body temperature, carried out using image processing techniques using the infrared thermography method through a series of complex algorithms. This study uses a single-board Raspberry Pi 4 computer with the Python programming language with the OpenCV Library which contains various algorithms related to the process of an object. The process for mapping in this research data from thermal cameras arranged in an array of  $32 \times 24$  pixels can determine the existing temperature, so that it can analyze the temperature distribution pattern by identifying the object temperature and analyzing the image based on the number of people. The analysis obtained from the characteristics of the thermal camera from the measurements obtained an accuracy of 99.8% and an error of 0.2% for a distance of 5 cm. The results of image analysis recorded by the sensor can be mapped with a maximum number of 9 people detected because it has limitations when the object is read by the thermal camera, this is influenced by the condition of the field of view with the dimension area covered by the sensor is only 3.2795 x 1.9863 meters. In addition, it can convert pixel data into heatmap graphics that are displayed on the Graphical user interface (GUI).

**Keywords:** *Graphical user interface (GUI), image processing, mapping, single-board computer and thermal camera.*