

## ABSTRACT

Criminality is one of the classic problems is faced in the big city. One type of crime that is rampant today is theft. Today many thieves who entered home using a duplicate key or use a special way to unlock the door. Therefore, it needs a tool that is able to anticipate the occurrence of theft, a system which uses a special key. Keys are only identical by home owners, one of which is the face.

In this final project, the author made a door security system using face recognition as a key to open the door. Feature extraction method used in this tool is eigenface method, whereas the recognition method used is the method of template matching. By using face recognition, only certain people are allowed through the door. The security system consists of three main parts, namely a camera, raspberrypi, and Arduino. Image of the user's face will be taken using the camera. The captured image is processed in the raspberry pi computer with a small size and matched with the existing database. The results will feed into the image processing arduino whether the door is open or remain locked.

From the test results it can be concluded that the system runs fine if bright light and complete database contains various expressions and attributes. The average time detection and face recognition process for a database of 30 people is 24 778second.

Keywords : Face Recognition, Arduino, Raspberry Pi