ABSTRACT

A safe is a storage facility that is capable of storing valuable items such as money, important documents, jewelery and other valuables. The safe also includes a storage area that is quite practical and doesn't take up much space. Security in a safe today still uses a semi-automatic lock system and a pin to open the security lock in the safe. The use of semi-automatic locking is less efficient for its use, the owner of the safe easily forgets the pin of the safe. Pin locks can also be broken into by thieves without the knowledge of the owner of the safe. Given these problems, this study aims to create a prototype security system using face recognition with the library from Open Computer Vision (OpenCV) and the LBPH (Local Binary Pattern Histogram) facial recognition method based on Rasbeerry Pi 4. Based on face recognition testing, the system can detect faces with light intensity of 29 - 48 lux, face position 0°- 45°, and at a distance of 60-100 cm. The working system of this tool can unlock the safe by detecting the face of the safe owner. The safe lock can only be opened on faces that have been stored in the dataset that has been trained. If the face is not recognized by the system, or in the "Unknown" status, the system will provide a security notification via email to the owner of the safe. Based on the results of conformity in the facial recognition test, an accuracy of 88,8% was obtained, and for testing the average time for sending email notifications was 2.59 seconds.

Keywords *: Safe, Face recognition, OpenCV, LBPH, Prototype*