ABSTRACT

Security is a vital necessity for every human being, either to protect himself as well as its material. Along with the development of technology, security systems continues to grow by utilizing a variety of media and technology to improve security and to offer convenience to its users. One technology that is now rapidly growing is smartphone based on android operating system which is now its use in the community is no longer a luxury lifestyle. The number of manufacturers that produce a wide range of smartphones to make the most of the economic society can recognize and use these technologies. One of the advantages of android operating system which provides an open platform for developers to create their own applications.

By utilizing the features offered by the Android operating system above, in this thesis has been realized door lock security system based on microcontroller that is accessible using a finger code image captured using a smartphone's camera and then processed using an algorithm that has been designed with the Euclidean distance classification method to produce decisions which will be used to execute the door lock through bluetooth communication.

From the above results obtained a non-realtime algorithm accuracy rate is 86.11%. The average level of accuracy of the system in realtime is 84% with computation time is 14.4 seconds. The maximum range of bluetooth communication between the application and the hardware is 12.9 meters.

Keyword : doorlock, android, microcontroller, Euclidean distance, bluetooth.