Design And Build A Facial Recognition Based Motor Vehicle Security System

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***Abstract**.*
The background of this research is to build a system that will be able to help reduce crime, especially not the crime of motor vehicle theft by using the concept of facial recognition on every motorized vehicle. Therefore, the owner will be recognized by the vehicle directly. The method used in this study is to use the method of literature study or literature review by using the basis of journals with the same research because this will find differences between journals and other journals so as to find novelty in journal writing. The problem raised in this research is how to reduce the rate of motor vehicle theft by using the system method or the internet of think method, therefore by making this system it will be able to help the police in reducing the crime of motor vehicle theft. The purpose of making this paper is how to create a system that can reduce motor vehicle crime, especially motor vehicle theft so that it can make motorists trust in leaving their motorized vehicle anywhere. Therefore, by making a facial recognition system on vehicles it will be able to reduce crime rates and can make motor vehicle drivers believe.

*****Keyword :** Facial Recognition, Motor Vehicle, Security System, Smart System.*

I.   INTRODUCTION

The high number of cases of motor vehicle theft, especially motorcycles, is a daily problem that still needs to be solved. One of the ways to secure motorcycles from theft. One of the smart security system technologies in the field of transportation is an intelligent security system for motorized vehicles. Several methods of motorized vehicle security systems that are currently being used include facial recognition or facial recognition applied to the vehicle, one of the technologies that has a high enough accuracy where the user must first register a photo of the user's face that must be stored in the database [1]. In the journal "Design of a Motorized Vehicle Security System Based on Face Recognition" a face recognition application was made so that the safety of motorized vehicles could be guaranteed. However, the author feels that there are still things that can be developed to improve the safety of this motorbike. One of them is to provide a notification system when it is not the owner of the vehicle who is driving the motorcycle. The purpose of building a security system, Increase security on this motorcycle, Minimize the possibility of vehicle theft, Increase a sense of security to the rider [2]. The method used in this research is to use the literature review method based on previous journals so that this research makes the latest research with novelty from research based on previous research, therefore by reading a lot of previous research it will find problems and future research [3].The problem raised in this study is how to reduce crime, by early detection of vehicle owners. Therefore, with the system offered in this study, it will be able to recognize who is the real owner of the vehicle that will be tested on the owner's facial recognition [4].

The purpose of this study is how to make a proposed system that can make vehicles recognize their owners. Therefore, with the internet of things system, with a face detection system for the owner of the vehicle, it will be able to reduce crime because it will be able to detect early who is the owner of the vehicle [5]. According to Casagras, a Coordinator and Support Action for Global RFID-rRlated Activities and Standardization or Coordinator and Support Action for Global Activities and Standardization related to RFID defines the Internet of Things or IoT is a global network infrastructure, where, they combine objects (in the form of physical and virtual) through exploitation, recording and communication capabilities. According to John D.

Howard in his book "An Analysis of security incidents on the internet" states that: "Computer security is a preventive measure from attacks by computer users or irresponsible network accessors." According to Gollmann in 1999 in his book "Computer Security" stated that "Computer security is related to the early prevention and detection of unrecognized intruders in computer systems, the definition of IoT based on his statement is a tool with the support of internet capabilities, where the tool (Internet of Things) has the potential to change a world. According to Judd Robin, computer forensics is a simple application of computer investigation and analysis techniques in determining the various possible legal evidences. The tool is designed to detect faces through the camera on a motorcycle. If the face is not recognized, then the vehicle cannot be started and the owner will be notified via that the motorbike has been stolen [6].
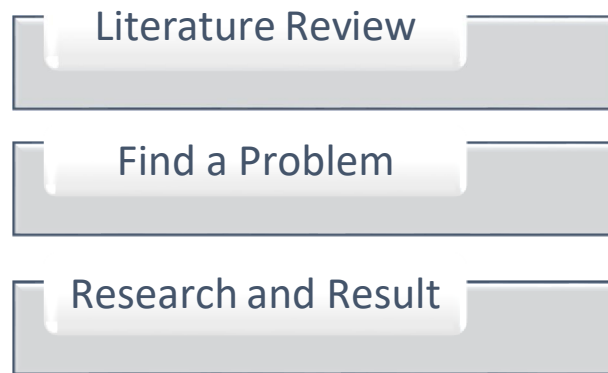
II.   METHODS

Fig 1. Research Method

In this study using a research method, namely the first is a literature review by using the library mode so that researchers read many journals related to previous studies, therefore by reading many journals, researchers can find between journals and journals with differences that can be seen. in previous journals, researchers can do research by finding the latest problems based on existing research with the latest research, researchers can try to find the novelty of the research raised in this research, therefore this research is the basis of future research that can be developed so that it can be sustainable and this research can be applied in a well defined place and developed continuously so as to get maximum results and can be applied anywhere.

III.   RESULT AND DISCUSSION

To make this application able to improve security for the better the author will provide additional features in the form of giving notifications to vehicle owners and also the location of the motorbike that is being stolen in real time. When the thief or unknown person wants to ride the motorbike, the system will identify the rider via the camera on the motorbike. If the driver is not a registered owner, the vehicle system will not automatically be turned on. A notification will be sent to the owner and information on the owner's motorbike. In addition, vehicle owners can also disable this system if they don't want to use it.

Based on Figure 2 is an image of a flowchart that describes the security system flow of the proposed system. The image is a flowchart image that describes the system flow of a proposed system, which is contained in this research. The flow of the system is first to start and then to face detection after there is an option, namely face read after that there are two choices, if yes then the car will turn on then the system sends a notification to the vehicle owner and knows the location of the vehicle after that the system ends, but if your system is then the system will end soon.
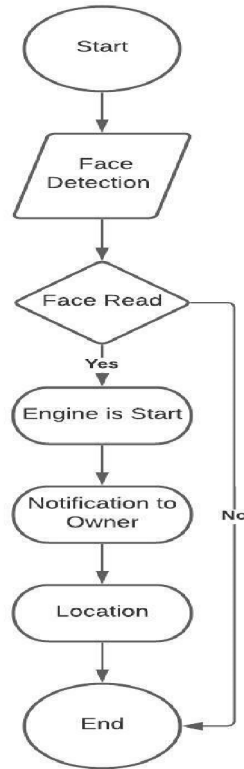
Fig 2. Flowchart of security system

Based on Figure 3 is an image, the diagram has an actor as a driver and has a use case diagram, owner registration, active system, inactive system, tracking system, and notification receipt, with the proposed system in this image the driver can know and can turn on the vehicle using the Face Detector.
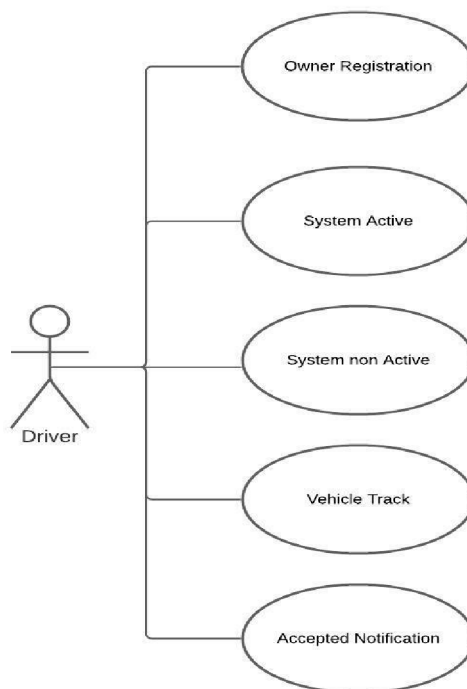

Fig 3. *Use Case Diagram*

Based on Figure 4 there is an activity diagram, which consists of 3 activities the first is the driver, system, and application, this system starts from the driver who develops the vehicle, by the system with face detection if yes then the motor will be turned on, if not then the motor cannot be started, then he will send a notification that the motor cannot be started, after that if yes then the system will end and if not after the notification sent by the system application it will end, then if the driver immediately takes the action then the system will end.
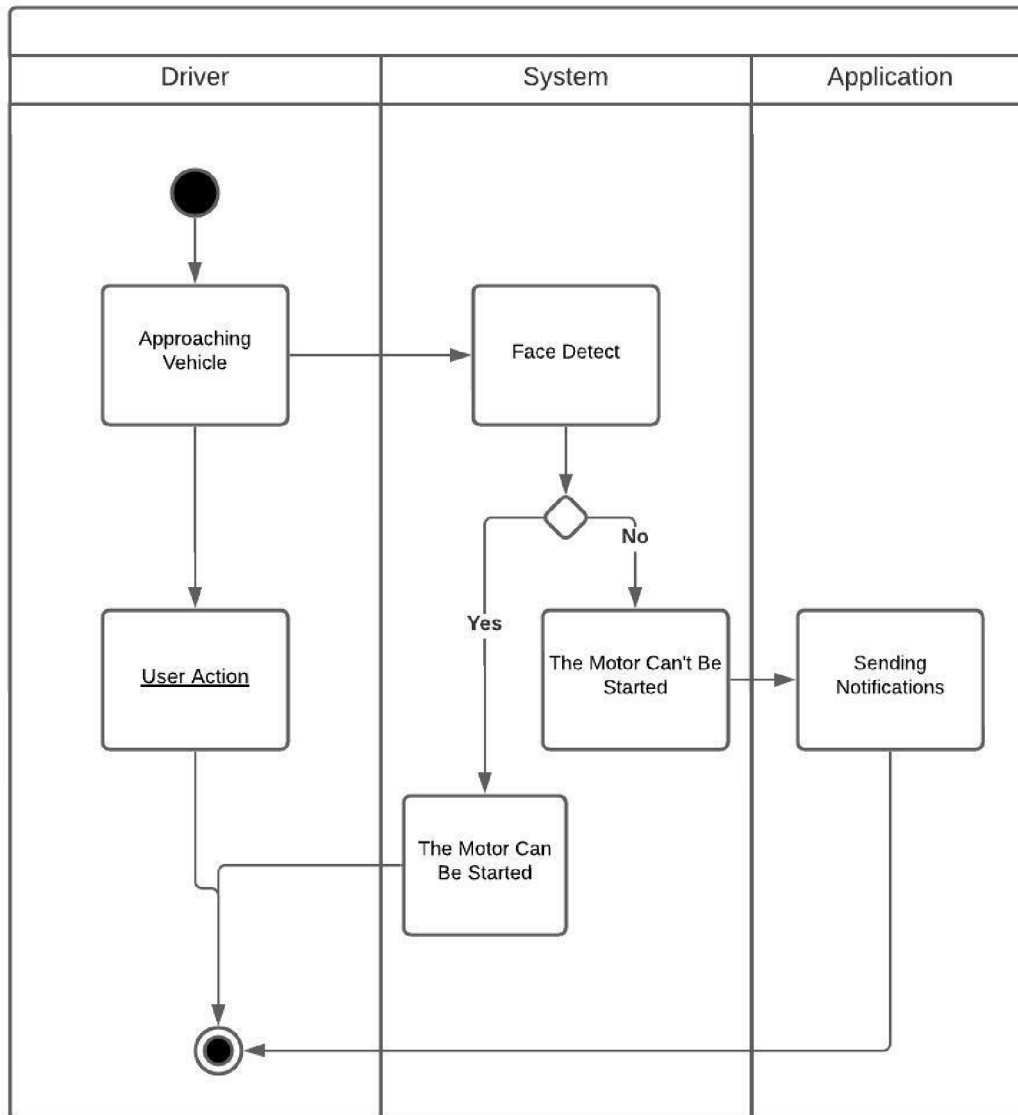

Fig 4. *Activity Diagram*

Based on Figure 5, it is an image of the framework used in this research. The image will explain that vehicle users will use an application to turn on or drive a vehicle, either a two wheeled vehicle or a four wheeled vehicle. With the application, the system will recognize that the owner of the vehicle can drive a vehicle and can reduce the crime rate because it can reduce motor vehicle theft because the system can only recognize the owner of the vehicle.
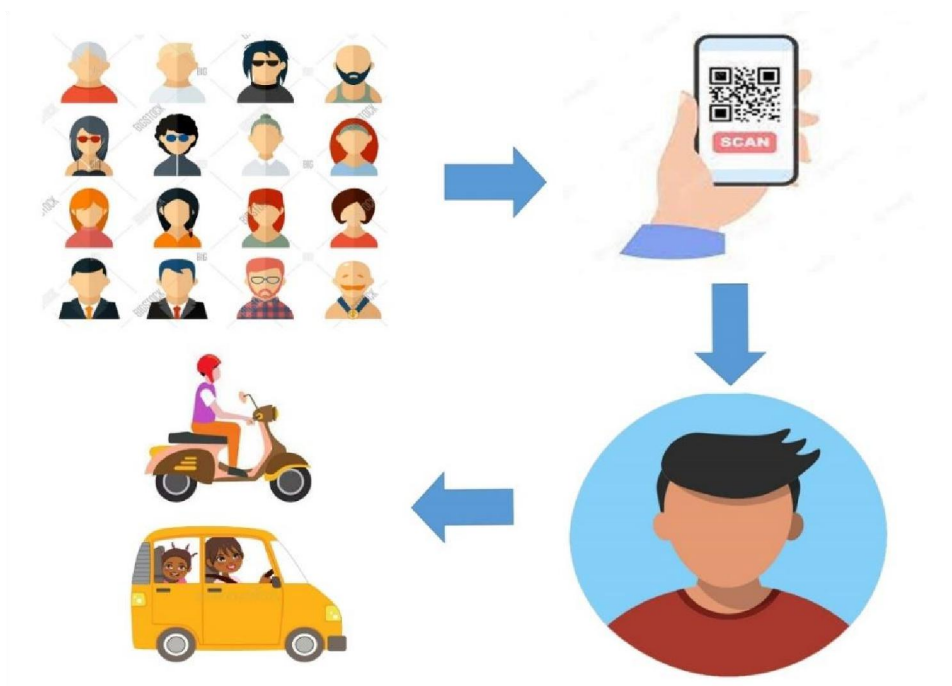
Fig 5. *Framework System*

IV.   CONCLUSION

Crime in the form of "Curanmor" (motorcycle theft) is something that is vulnerable to all of us whose cases are increasing day by day. Today's technology can provide us with the security and comfort we need. Even things like tracking down the whereabouts of our vehicles and preventing motorbike thieves are not this is impossible in this day and age. For that we need to take advantage of technology so that human life can be more comfortable and safe

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