Chapter 6

Conclusions and Future Work

6.1 Conclusions

The automated driving system for emergency situations you described involves several components. Initially, there is an interior camera in the car that monitors the driver's facial expressions in real-time. There is also a smartwatch worn by the driver, which serves the purpose of gathering additional vital measurements and providing extra information to the automated driving system for emergency situations. These measurements may include heart rate, respiration rate, and other indicators such as blood oxygen levels. This information is shared with the internal camera data to provide a more accurate picture of the driver's condition and guide appropriate actions.

Overall, the system works by integrating the information gathered from the interior camera and the smartwatch to assess the driver's condition and take appropriate measures to ensure their safety and transport them to the nearest medical point as quickly as possible. Once triggered, the system automatically takes control of the vehicle using programmed mechanisms such as line and object detection algorithms. This is achieved by utilizing an interior camera to ensure the car remains in a safe state while moving towards the nearest safe point.

Subsequently, the system sends the driver's vital indicators and the car's location to an integrated web system, which, in turn, dispatches the car's location to the nearest emergency point for assistance to reach the driver promptly. In the event of a malfunction in the vehicle's automated system, there is an alternative integrated control system. This system allows a person to remotely control the car using programmed buttons connected to the car's steering wheel through signals on a web page within the web system. Additionally, there is a process to add the driver's information and car number to the database of the overall system.

6.2 Future Work

It would have been possible to use LIDAR instead of ultrasonic, but its cost is very high and there are problems with connection because it is imported from abroad and due to a shortage of its availability locally, despite the fact that its advantages are better because it provides higher resolution than ultrasonic.