ABSTRACT

Traveling using motorbikes has become an alternative for people who have traffic jams, especially in big cities in Indonesia. In driving, you must use the predetermined standards in each country. In Indonesia, helmets are one of the safeguards for motorcycle users. However, there are still deaths due to high motorcycle accidents. This is caused by another factor, namely the transfer of coordination that uses a smartphone when driving. In addition, the delay in handling accidents also resulted in delays to the hospital as well as being a factor in the death of motorcycle users.

Thus, a device that can provide information to hospitals or related ones is needed which minimizes the use of smartphones when driving. This final project sets a helmet that can be combined with a smartphone using bluetooth Bluetooth Low Energy (BLE) and bluetooth audio. Bluetooth module as DAC (Digital to Analog Converter) on audio and serial communication on accident detection.

From the results of experiments conducted, it can be concluded that the heavy helmet after installing the device is still under a heavy helmet on the market. The use of both HM-10 and Win-668 bluetooth modules is sent up to a distance of 30 meters, but at a distance of 19 meters the connection is lost. Use of GPS It takes time to lock the satellite an average of 3.97 seconds to 10.87 seconds. The use of sensor flexs as a detector for the use of helmets with a value of 100% according to accuracy, precision and sensitivity. In addition, the accident resolution detector with an average value of accuracy was 94.07%, the average value of sensitivity was 91.05% and 100% precision.

Keywords: *Helmet, Bluetooth, Bluetooth Low Energy, DAC.*