

The high mortality rate from vehicle accidents is from 2-wheel riders by 2%. Most motorcycle deaths, the most severe injuries are the head and spinal cord, it can be drawn the conclusion of the importance of wearing a safety device. One way to reduce the impact of the accident is with the use of a helmet, but it still cannot avoid the movement of the brain inside the skull if hit hard enough, the brain can hit the skull that can lead to trauma. The use of *Airbags* on vehicles has been shown to reduce mortality, NHTSA (National Highway Traffic Safety Administration) recorded as many as 44,869 lives in 2015 was saved due to *Airbags*. With the solution of the *Airbag*, this final project will apply smart helmet by applying fall detection algorithm to sensor and microcontroller. The way the *Airbag* works is when a hard collision is detected, the sensor immediately sends a signal when it falls and then the *Airbag* immediately expands. The purpose of making this smart helmet is to reduce the hard impact so that the victim does not experience brain trauma when the accident is detected.