

Digitalized Helmet

Shannon Paul

Sai Prem

Lohith

Guruvignesh

Sivesh

A thesis with an idea submitted by our team for
science exhibition

Sept 2023

Abstract

A smart helmet is a type of protective headgear used by vehicle drivers which makes bike driving much safer than before.

A helmet is very simple yet brings up many problems during usage. However these problems are no more when our digitized helmet is in use.

We use the following for our project:

Helmet

VR

Raspberry Pi

NoIR Camera module

Alcohol detector

Ir LED and normal LED

IR Sensor and other necessary components like jumpers, etc..

Our objective is common to all in its nature,

When driving in the night, vision might not be clear in areas of dim lighting and sometimes cause accidents.

Therefore with NoIR Camera module, we can avoid these problems. Like this, many people face the same problems and our **objective** is to provide for all.

Table of Contents

Chapter 1 - Objectives

Chapter-2

2.1 Components required

2.2 Visualization of the working model

Chapter-3 Conclusion

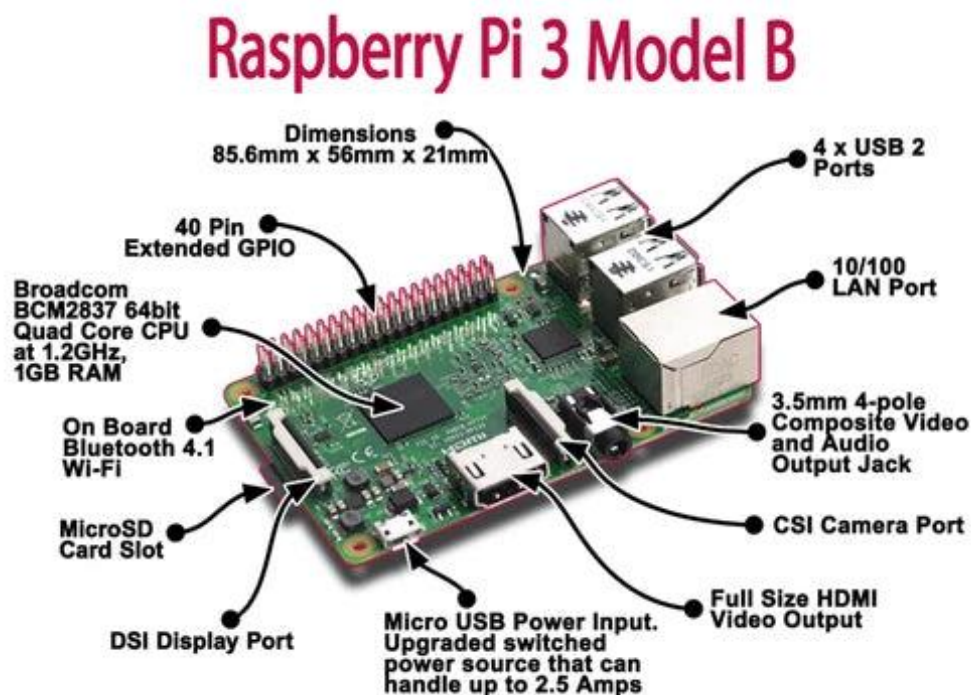
Objectives:

- 1) To provide enhancement of transportation.
- 2) To help in visibility of drivers at night. To reduce the casualties made by accidents in the night due to poor vision and casualties caused by sleep deprivation
- 3) To detect alcohol induced drivers and prevent them from driving
- 4) To detect sleep deprived drivers

Components required

- **Raspberry Pi:**

Raspberry Pi is a low cost, credit-card sized computer, and uses a standard keyboard and mouse. We have coded it in python. The version of the pi that is being used is Raspberry Pi 3 Model B.



- **Camera Module:**

It will be used to capture the picture which will be captured repeatedly at a fluid pace, creating a fluid sense of motion, what we call a video.



- IR and Normal LED
- Alcohol or Ethanol gas detector



- **IR Sensor**



Visualization of the working model

A picture is taken spontaneously by the camera module and is displayed via the phone, and this process is repeated continuously to form a video.

Certain kinds of things like cars or humans can be identified and a green box surrounds the identified entity. This can help in identifying kids or pedestrians crossing

The alcohol detector detects the presence of alcohol and triggers a signal through the GPIO pins and a red screen pops up indicating a warning, eventually leading to the stoppage of display.

The IR Sensor is connected to detect movement, in this case, closing of the eye for more than 2 or 3 seconds.

CONCLUSION

By this project, we can understand that simple gadgets like helmets, when altered slightly to fit the needs of our human society, will be much more effective even on a small scale.

We can only hope that our project would be an improvement to people who had already suffered.