DRIVER STATE ANALYSIS USING AI TO AVOID ACCIDENTS

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Abstract:

Accident prediction is one of the most critical aspects of road safety, whereby an accident can be predicted before it actually occurs and precautionary measures taken to avoid it. For this purpose, accident prediction models are popular in road safety analysis. Artificial intelligence (AI) is used in many real world applications, especially where outcomes and data are not same all the time and are influenced by occurrence of random changes. This project will analyze the driver state whether the driver is getting into sleep state or not. This was done by using eye aspect ratio which gives us an indication of a person eyes are closed or not. When he closed his eyes or yawns, our system will automatically detects and alerts with a buzzer.

Keywords: AI, Raspberry pi, eye aspect ratio, yawn detection.

Existing system:

In previous system, we have MEMS sensor which will detect if a person is sleeping or not by attaching the sensor on his neck. This system couldn't detect when a person closes his eyes.

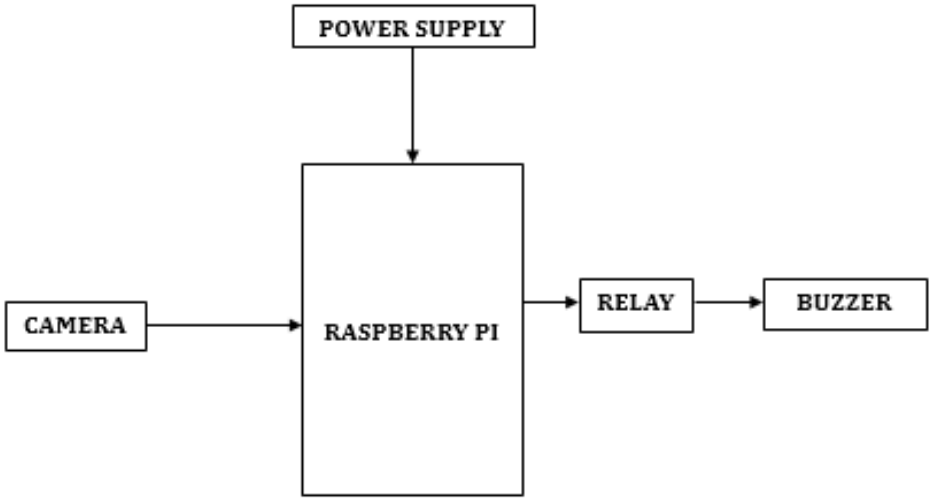
Drawbacks:

- Not an accurate method to identify driver state.
- No yawn detection.

Proposed system:

Here we are proposing a technology to save the driver life by using camera and buzzer. Camera will take and observe the rider at that time if the driver gets sleepy or if he gets yawn randomly or closes his eyes for long then the buzzer will generates an alert so that the driver can woke up and can avoid accidents. Data will display in the LCD.

Block Diagram:



Advantages:

- Automatic face detection
- Eye and Yawn detection both are done.
- Automatic buzzer will alarm
- We can alert the driver

Applications:

- This system can be used at vehicles

Hardware Requirements:

- Raspberry Pi
- Micro SD card

- 5V Adapter
- Camera
- Relay
- Buzzer
- Connecting wires

Software Requirements:

- NOOBS Software
- Python3 IDE
- VNC Viewer
- Fritzing