HOLY MARY INSTITUTE OF TECHNOLOGY & SCIENCE

Approved by AICTE New Delhi, Affiliated to JNTU, Hyderabad, NAAC "A" grade

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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

DROWSINESS RECOGNIZATION USING
MATLAB

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OBJECTIVE

- Nowadays the driver safety in the vehicle is one of the most wanted system to avoid accidents. Our objective of the project is to ensure the safety system. For enhancing the safety, we are detecting the eye blinks of the driver and estimating the driver status and control him accordingly.
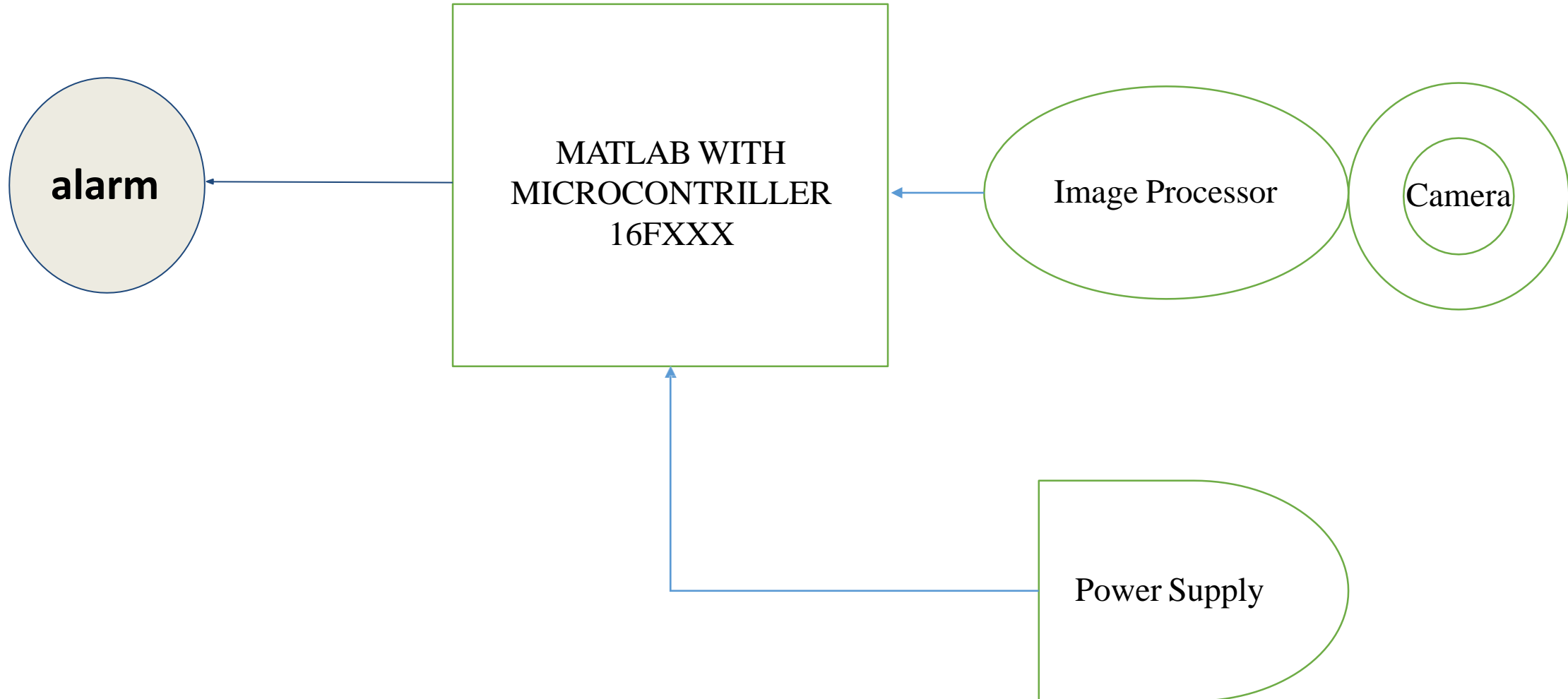
INTRODUCTION:

- Aim of this project is implementing the system as a prototype by capturing the live images of the eyes and fed them into the Microcontroller in which the MATLAB software is used to process the video and convert it into frames and process it accordingly. Some customized algorithms are coded in MATLAB for image segmentation of eyes from the entire image and image recognition of the eyes and face position.

- On the whole, by sensing the eye blinks we can decide, if the eye blinks are more, then the driver is very sleepy.

BLOCK DIAGRAM

METHODOLOGY:

- The eye blinks of the driver and estimating the driver status and control him accordingly. We are implementing the system as a prototype by capturing the live images of the eyes and fed them in to the Microcontroller in which the MATLAB software is used to process the video and convert it in to frames and process it accordingly.
- Some customized algorithms are coded in MATLAB for image segmentation of eyes from the entire image and image recognition of the eyes and face position.
- Overall, by sensing the eye blinks we can decide if the eye blinks are more, then the driver is very sleepy. Accordingly, the alarm will give a warning sound to the driver.
- Even if the driver is not responding to the alarm, the camara which is continuously capturing will send images to the microcontroller device which will process image and give a warning again with increased percentage of alarm sound, so that it can be heard by the driver and he will get alert.
- This process will alert the driver and he can control the vehicle.
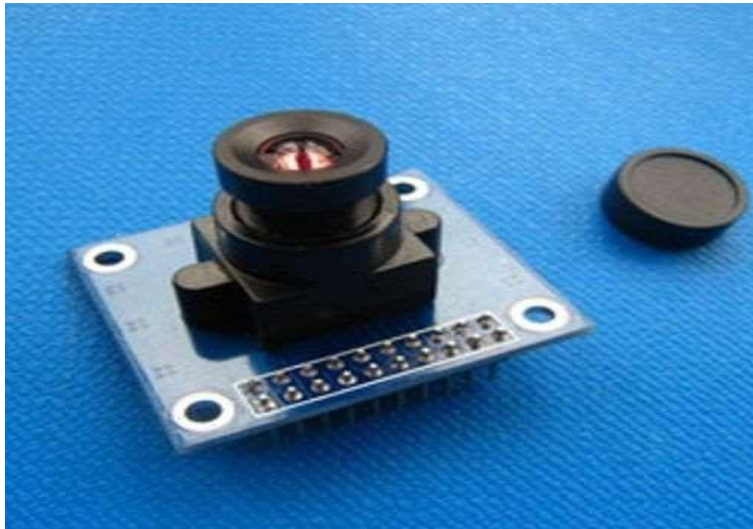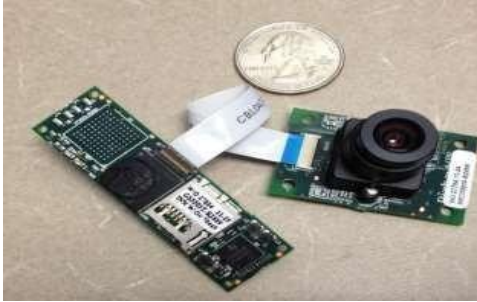
ALARM

ALERTS THE DRIVER
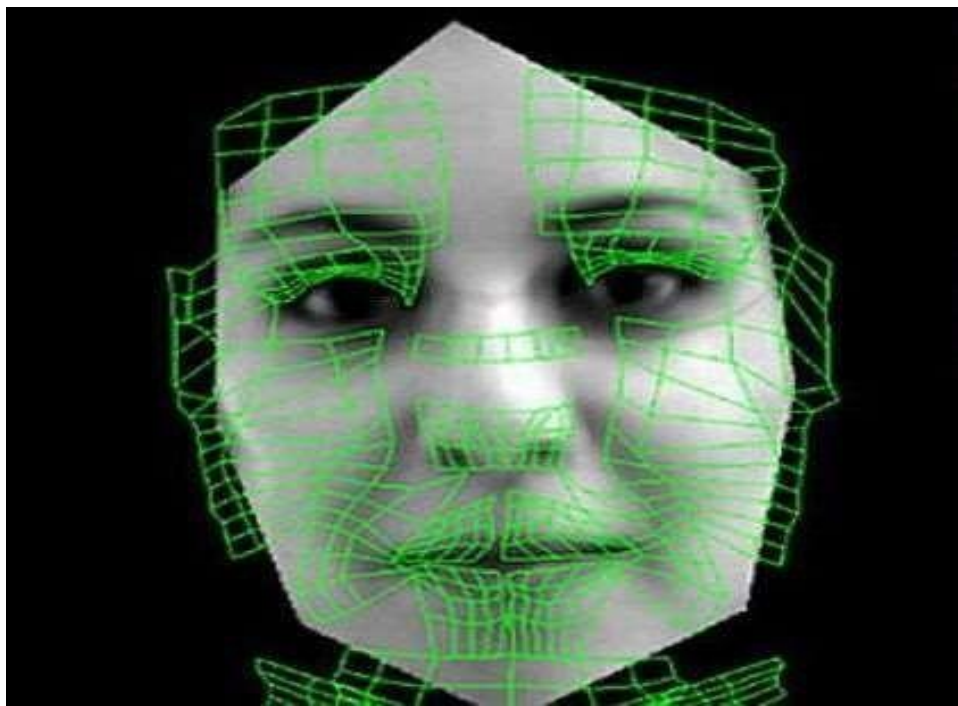
COMPONENTS USED

CAMERA

MICROCONTROLLER WITH
DUMPED MATLAB SOFTWARE

SOFTWARE USED

MATLAB

IMAGE PROCESSING USING MATLAB
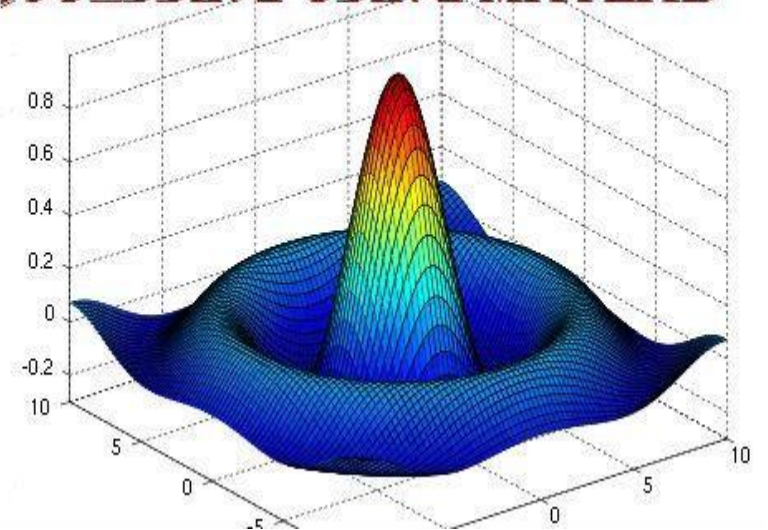
IMAGE CAPTURED BY CAMERA

IMAGE PROCESSING

- A lot of way can be developed to find pupils in the given area surrounding the eyes. It can also be done using hue or saturation, which leads controlled conditions given to good results , but it highly depends on the current light situation.

- Thus, another way is used to find the pupils. A picture of the pupil runs over the current picture area and tries to find the place with the highest accordance. Different pupils where used for testing and the best result were gained by pupils directly from the tester, which was not really surprising. Obtaining them is not that simple that simple thought. We name this algorithm is called Eagle Eye Safety. Which requires too much calculating time to be used in real time environment's, but is fact enough for getting pupils

LIMITATIONS

Limitations of the proposed system are as follows:

- If the driver is using sunglasses, then the computation doesn't work.
- If there is the striking light directly on the web-camera then the system doesn't work.

- Multiple face problem: If multiple face arise in the window then the camera may detect more number of faces undesired output may appear. Because of different condition of different faces. So we need to make sure that only the driver face come within the range of the camera. Also the speed of detection reduces because of operation on multiple faces.

FUTURE WORK

It is required to make the speed of vehicle slow or slow down the speed of vehicle in real time drowsiness detection. In order to create continous monitoring, threshold drowsiness detection should be kept aside. While monitoring the drowsiness continuously, when the level exceeds certain value a signal is generated which directly controls the braking of vehicle.

CONCLUSION

In this way, we have successfully implemented drowsiness detection using MATLAB and Viola Jones Algorithm. The developed system has been successfully tested and its limitations are indentified.

THANK YOU