ITSP 2015
FINAL PRESENTATION

TEAM ID: 105 (VISIONERS)

DRIVER DROWSINESS DETECTION

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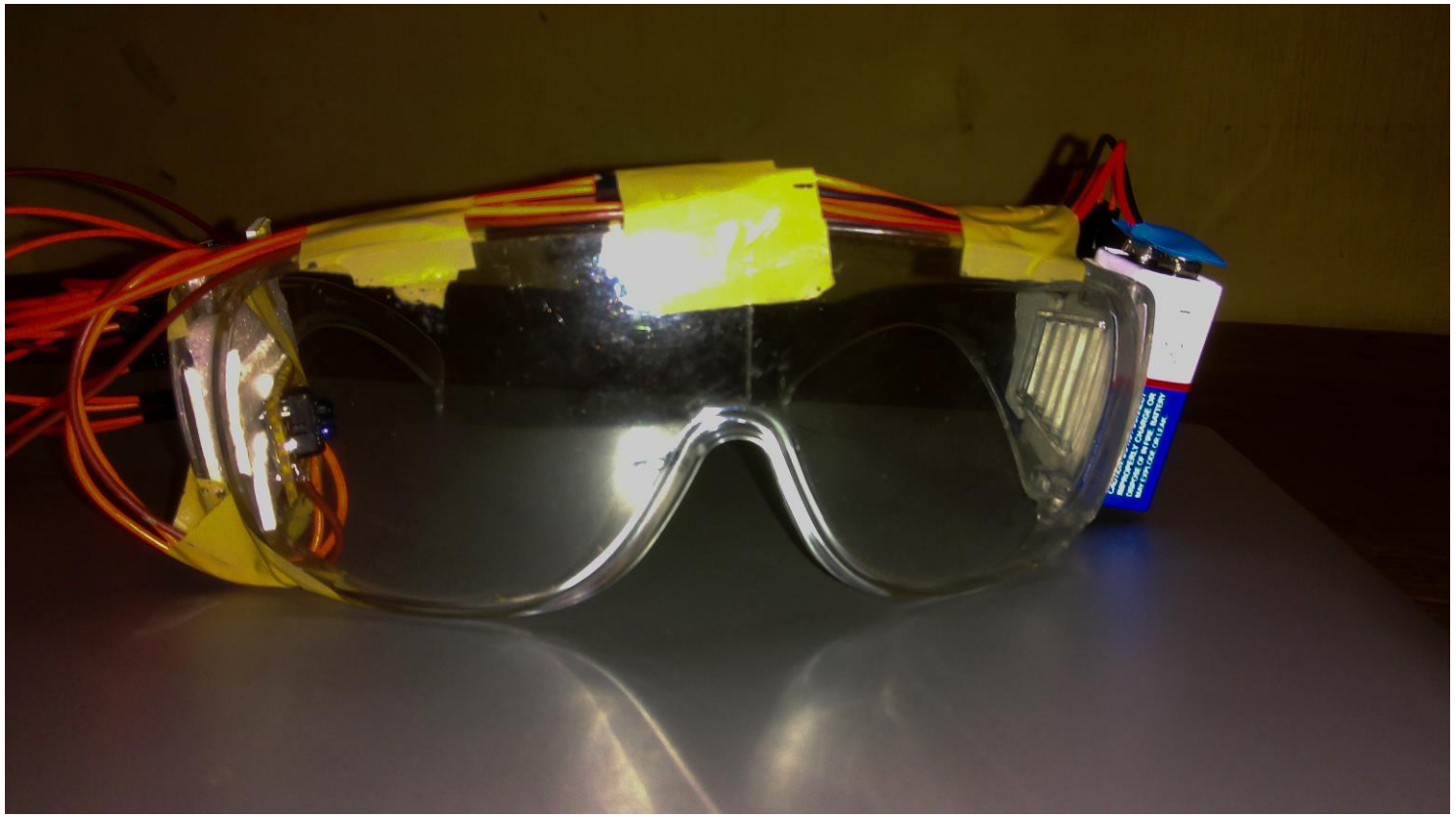
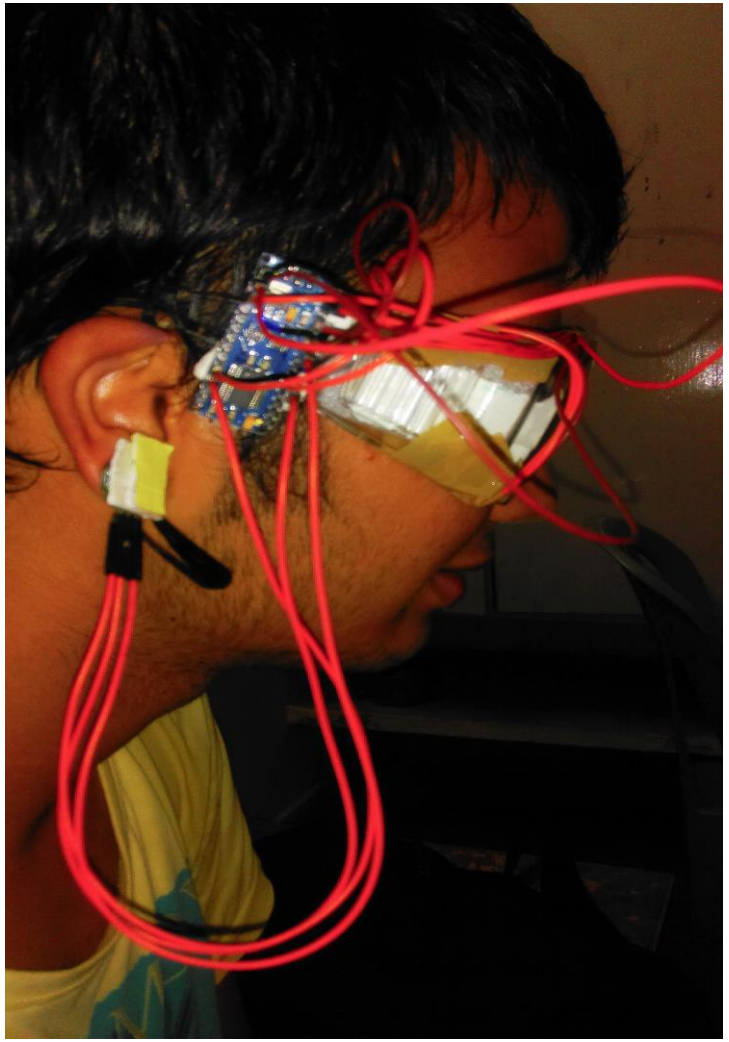
FACTORS USED TO PREDICT DROWSINESS:

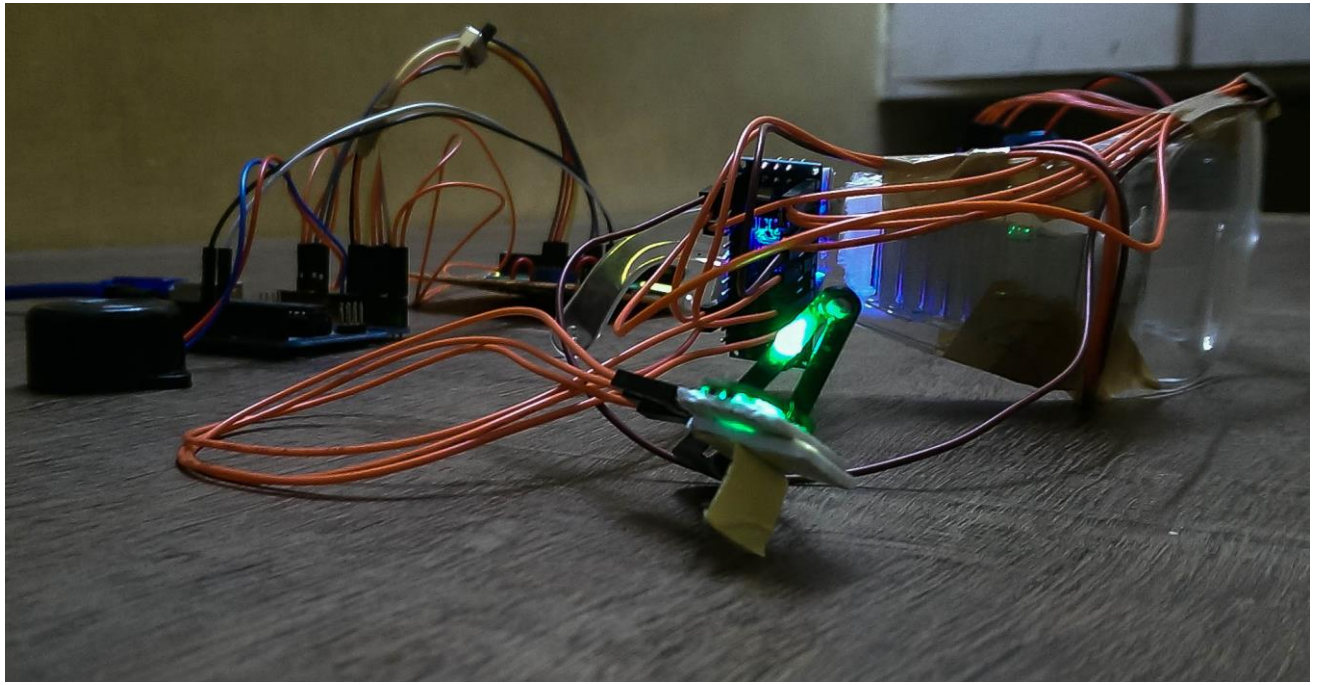
- 1.HEART RATE
- 2.COEFFICIENT OF VARIATION OF R-R INTERVALS (experimental stage)
- 3.EYE BLINK DURATION

DRIVER DROWSINESS DETECTION SYSTEM EMBEDDED ON GLASSES!!

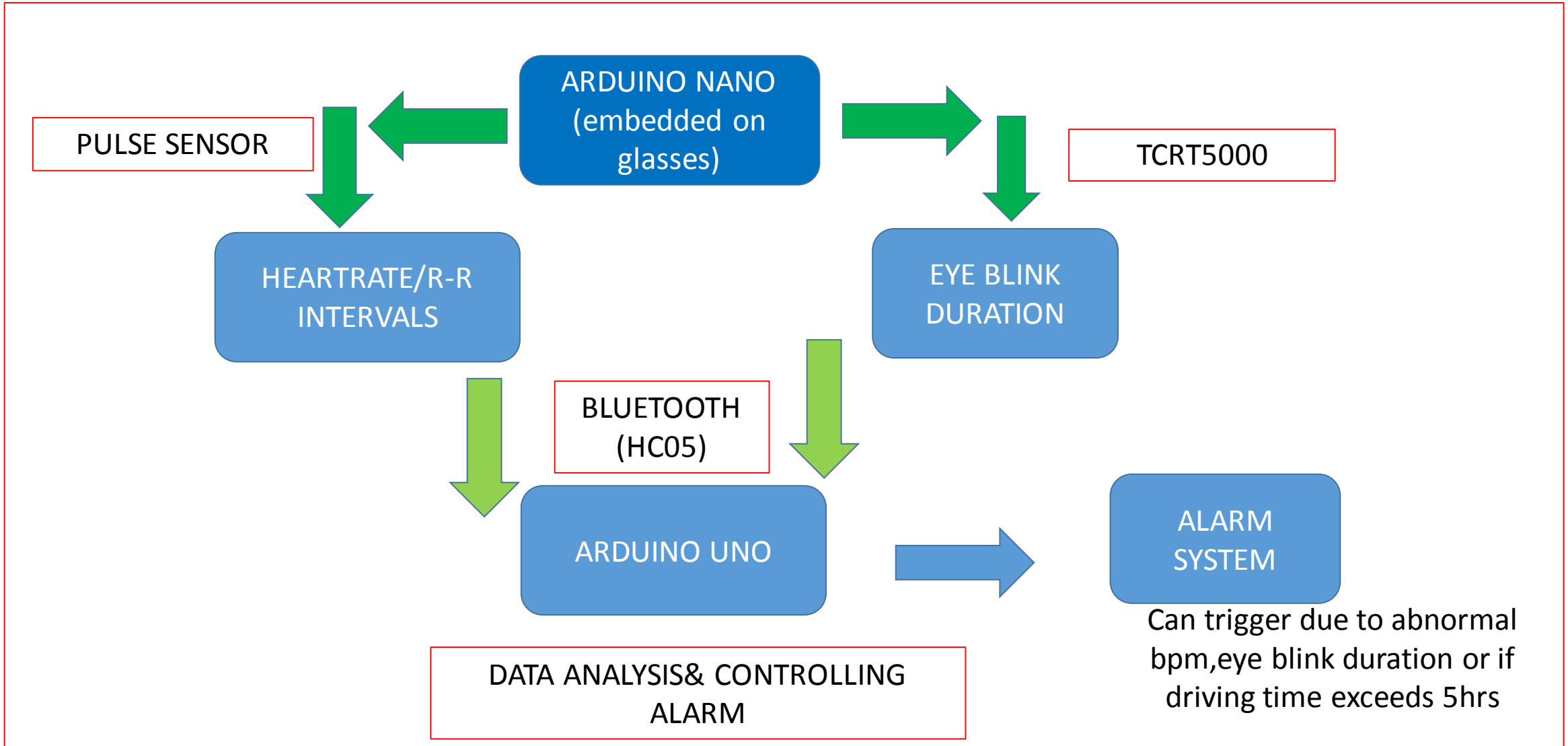




FINAL PRODUCT!!



SYSTEM BLOCK DIAGRAM:



PREDICTING FATIGUE WITH HEART RATE/R-R INTERVALS (FROM PPG)

- 1.ON SOME OBSERVATION AND FROM RELIABLE SOURCES,WE DECIDED TO TRIGGER THE ALARM ON 8% DECREASE FROM NORMAL RESTING BPM WHICH WILL BE RECORDED APPROPRIATELY AND STORED BY THE SYSTEM.

- 2.ALSO WHEN THE BPM RISES ABOVE 100 BPM DRIVER IS NOTIFIED .

- 3.COEFFIECIENT OF VARIATION OF R-R INTERVALS(OF 100 SAMPLES) WERE FOUND TO BE RELATED TO ALERTNESS LEVEL .

PREDICTING FATIGUE WITH EYE BLINK DURATION:

EYE BLINK IS DETECTED WITH TCRT5000 (IR LED/PHOTOTRANSISTOR PACKAGE)

- 1.NORMAL HUMAN AVERAGE EYE BLINK DURATION IS 400ms
- 2.IT IS FOUND TO BE CONSIDERABLY LARGE DURING DROWSINESS
- 3.ON SURPASSING THE THRESHOLDS VISUAL ALERTNESS IS CREATED.

FUTURE WORK

- 1.WORK ON MAKING A PRODUCT WHICH CONSUMES MINIMAL POWER.
- 2.EXPERIMENTING EXTENSIVELY ON R-R INTERVAL ANALYSIS
- 3.IMPROVING DESIGN OF THE SYSTEM
- 4.INCORPORATING MORE FACTORS INTO THE SYSTEM TO DETECT DROWSINESS
- 5.IMPROVING ALARM TRIGGERING EFFICIENCY