

THE BREATHALYSER CONNECTION

Introduction

The Breathalyser Connection is an integrated system that combines both hardware and software components to accurately measure the level of alcohol present in one's breath through an embedded sensor. The device effectively produces results for the conducted breath alcohol test, which can be accessed via a personalized mobile application and displayed on the device in real-time.

Features



Goals

The primary goal of the project is to mitigate the occurrence of alcohol-related road accidents in Ireland. The device has been designed with the latest technology and features a simple and user-friendly interface. To retrieve your Blood Alcohol Concentration (BAC) levels, all that is needed is to exhale into the tube and hold the button for five seconds. The Breathalyser's sensor swiftly analyses your breath, giving precise results to make informed decisions about driving safety.

Results

I worked on developing an box enclosure for the breathalyser to store the hardware components and conducted thorough research to find the most efficient formula for precise calculation of test results using the MQ3 sensor. In addition, I utilized Firebase technology to create a secure login authentication system for the mobile application and employed its ability to gather real-time data to quickly present users' test results on the React Native platform.



Conclusion

The integration of mobile software and hardware has revolutionized the way we measure Blood Alcohol Concentration (BAC) levels while consuming alcoholic drinks. The verification of readings through the LCD screen or mobile app provides users with the assurance that their BAC levels are within the acceptable range and avoid putting themselves and others at risk while driving. The combination of hardware and software play a vital role in accomplishing this achievement.



TEST BEFORE YOU DRIVE !



Ollscoil
Teicneolaíochta
an Atlantaigh

Atlantic
Technological
University

drinkaware.ie

RSA

Údarás Um Shábháilteacht Ar Bhóithre
Road Safety Authority

ALCOHOL DRINKS CALCULATOR

INSTRUCTIONS FOR USE

Step 1:

Take off blue cap and wait for
breathalyser to load

Step 2:

Hold button for 5 seconds
and blow into breathalyser

Step 3:

Wait for results and calculation
being done on screen

Result!

Alcohol test results indicated
through LED lights & through the
mobile app/screen

BLOOD ALCOHOL CONCENTRATION

0.02% BAC

0.05% BAC

0.08% BAC

0.10% BAC

0.15% BAC

NUMBER OF DRINKS



EFFECTS ON DRIVING

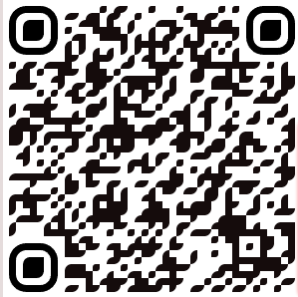
- Decline in visual functions
- Inability to perform two tasks at the same time
- Loss of judgment
- Altered mood

- Reduced coordination
- Reduced ability to track moving objects
- Difficulty steering
- Slower response to emergency driving situations

- Reduced ability to concentrate
- Short-term memory loss
- Lack of speed control
- Impaired perception and self-control

- Clear deterioration of reaction time
- Reduced ability to maintain lane position
- Reduced ability to brake appropriately
- Slurred speech

- Substantial impairment in vehicle control
- Loss of auditory information processing
- Major loss of balance
- Vomiting may occur



GITHUB
REPOSITORY