Be-Safe: Application to Limit Druken Drive Cases

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ABSTRACT-The amount of road accidents are increasing day by day, the main reason for that is drunk driving. Here wedeliver a solution for drunken driven accidents by implementing an application that will analyze and check whether the driver is fit to drive or not.

Keywords-Android, Arduino ,Blood Alcohol Content, Be-Safe and MQ3 Sensor.

I. INTRODUCTION

Smartphones are no longer a need but a style of living. They can be used for communication, social networking. Statistics showthat 51% of users in the world are using devices with Android OS. The application which we are implementing works in Android mobiles. According to recent surveys 1,3700 people were killed in road accidents that is more than number of people killed in all our wars put together[1].There is the one Demise every four minutes due to road accidents in India.

Drunken Driving is one of the leading casualties of road accidents. One serious road accidents in the country occur every minute and 16 die on Indian roads every hour [2].Around one-third of the drunken driving issues such as - arrests, crashes, deaths and injuries comes from repeat offenders. At any given points we potentially share the roads with two million people with 3 or more drunken driving offenses.

Alcohol can slow the pace of communication between neurotransmitter in the brain which carries messages between neurons. These chemicals can either intensify or minimize your body responses feelings and your mood [3].Alcohol shrinks and disturbs brain tissue which will lead to color-blindness and other effects.

In this application we provide you to check whether you‘re fit for driving after alcohol consumption. Various test like color identification, simple mathematical puzzles, horizontal movement and blood alcohol content sensing.

II. LITERATURE REVIEW

Android is a mobile operating system (OS) currently released by Google, built on the Linux kernel and intended primarily for touchscreen mobile devices such as smartphones and tablets. Android's user interface is mostlycenteredon straightoperation, using touch gestures that loosely correspond to real-world activities, such as swiping, touching and pinching, to manipulate on-screen objects, along with a virtual keyboard for text input.

Applications ("apps"), which extend the functionality of devices, are written using the Android software development kit (SDK) and, mostly the Java programming language which has complete access to the Android APIs. Java may be combined with C/C++, along with a choice of non-default runtimes that allow better C++ support, the Go programming language is also supported by laterversion from 1.4, which can also be used exclusively although with a restricted set of Android APIs. The SDK contains a complete set of development tools, including a debugger, software libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials.

An Arduino board historically consists of an Atmel 8-, 16- or 32-bit AVR microcontroller with matchingconstituents that ease programming and incorporation into other circuits. An important feature of the Arduino is its normal connectors, which let users connect the CPU board to a variety of interchangeable add-on componentscalled shields. Certain shields interconnect with the Arduino board directly over various pins, but many shields are independently addressable via an I²C serial bus—so many shields can be stacked and used in parallel. Before 2015, AuthorizedArduinos used the Atmel megaAVR series of chips, specifically the ATmega8, ATmega168, ATmega328, ATmega1280, and ATmega2560. In 2015, components by other manufacturers were added. A handful of other processors have also been used by Arduinofriendly devices. Most boards include a 5 V linear regulator and a 16 MHz crystal oscillator ,whilecertainschemes such as the LilyPadworks at 8 MHz and dispense with the onboard voltage regulator due to specific form-factor limitations. An Arduino's microcontroller is also pre-programmed with a boot loader that simplifies uploading of codes to the on-chip flash memory, related with other devices that typically need an external programmer. This makes using an Arduino more direct by allowing the use of an ordinary computer as the programmer. Currently, opt bootloader is the default boot loaderset up on Arduino UNO.

Arduino programs may be written in any programming language with a compiler that yields binary machine code. Atmel provides a development environment for their microcontrollers. Arduino can be connected to android phone either using Bluetooth or OTG cable. Arduino is programmed to sense the value of alcohol content when a person blows on to the sensor. MQ3 sensor is used to sense the alcohol content in blood.

The MQ-3 is a heat-driven alcohol device that outputs an analog, which through the use of your Arduino code and calibration, can be interpreted for whatever use you need.MQ3 consists of 3 pins A,B and H. Both the A pins are electronically the identicalto the B pins. The midpoint pins on eithersides are the heater element pins. Since the circuit will be running on +5V DC it doesn‘t matter which way the device is soldered to the board.

The aim of this application is to check whether you‘re fit for driving after alcohol consumption. Various test like color identification, simple mathematical puzzles, horizontal movement and blood alcohol content sensing.

III. SCOPE

- Implementation of solution is going to be done on mobile device with Android OS.
- Application can be used to limit drunken driving accident cases.
- Basic tests are to be taken to check whether you‘re fit to drive or not.

IV. METHODOLOGY

This research aims to provide a solution to the drunken drive cases. The following steps were executed

The **First step** is the user registration, when app is installed the user has to register with their name, weight, gender and mobile number where the messages will be sent.

The **Second step**is done after alcohol consumption, the user has to identify and perform various test like simple mathematical problems, blood alcohol content calculation and horizontal movement.

The **Third step** is after taking all data from the test and sensor value calculated, application check whether a person is fit for driving or not and a particular message will be send to mobile number provided during registration along with the user location details such as latitude and longitude and Google Map link.

V. IMPLEMENTATION

The application developed has various steps, The beginning of the application user have to register by providing Name, Phone, Weight, Gender and Mobile Number where sms can be send. After the registration user has to identify the Red color from a series of color and click the button when text color is red. If he fails to identify red color then the person is not fit to drive. Similarly he has to select text with Green and Yellow Color.

The user location is identified by the application latitude and longitude will be calculated and stored once the test is done based on the results the SMS is send to the number provided along with user latitude and longitude and Google Map Link

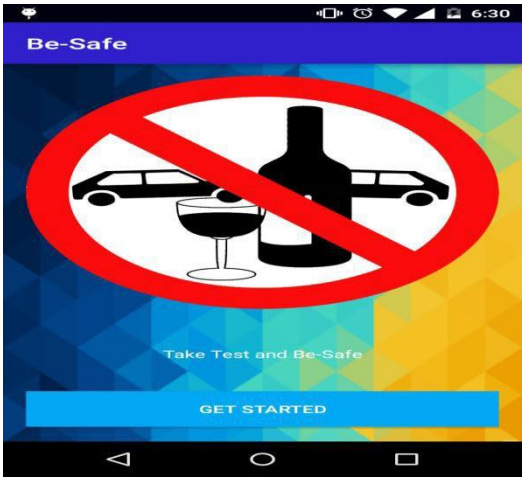

Fig1Application Starting

The second step is alcohol sensing the android application can be connected to sensor based on Arduino and MQ3 sensors. The sensor is connected to Arduino and Arduino is programmed to read value of blood alcohol content when the user blows to sensor. The sensor is can be connected to Mobile phone either using Bluetooth or USB OTG cable.

Fig 2User Registration

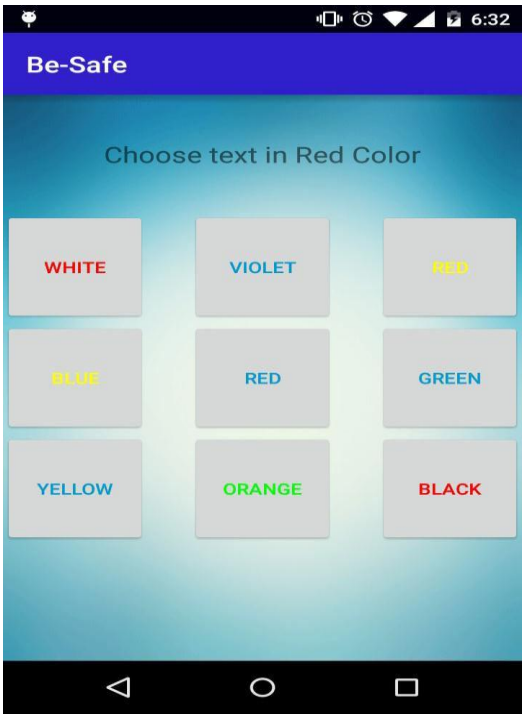

Fig 4 Color Picking

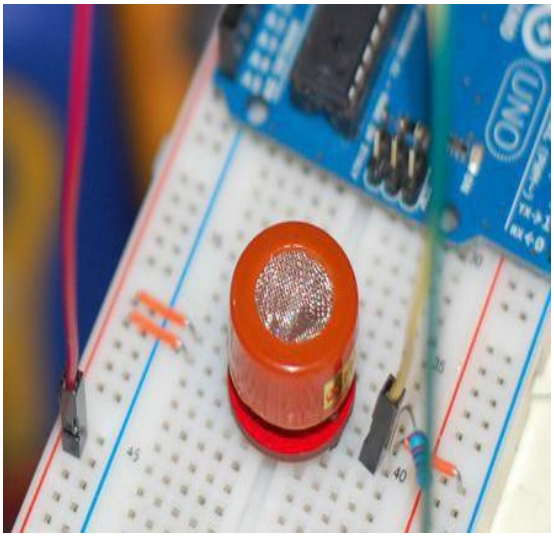

Fig 5Sensor

The third step is simple mathematical puzzles it‘s done to check the mental status whether they can deal with a particular situation when occurs. The user have to provide solution for simple mathematical question based on which the application determines whether you are fit to drive.

Fig 4 Puzzle

The fourth step is horizontal movement where user to have to move a certain distance in horizontal direction this test is used to check whether user mental stability is flawless.

The final step is based on the above four test application will calculate Blood alcohol content and with other statistics from the test application will predict whether you‘re fit to drive or not. If you‘re not fit a message will be send to the number provided during registration along with the user location latitude and longitude to the number provided.

VI. CONCLUSION

LIMITATION

- Is not for hefty drinkers.
- User may not provide proper data during registration and test.

FUTURE SCOPE

This is a prototype application and sensor. The application can be also made in such a way that it will lock the vehicle permanently if the user fail in test and it will be unlocked when he passes the test.

A SMS can be sent directlyto Police or other agencies about the location of the drunken driver so that they can take necessary actions.From this paper we like to present you an application which can be used to limit drunken drive accidents.

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