ASTIR

A smarter city is made of smarter, safer drivers

Drowsy Driving Info

In the year 2009, the US National Sleep Foundation (NSF) reported that 54% of adult drivers have driven a vehicle while feeling drowsy and 28% of them actually fell asleep

Source: "Save your life this memorial day." National Sleep Foundation (NSF): Arlington, VA, USA (2010).

A 2012 study in the journal JAMA Internal Medicine found that sleepiness while driving carried almost as much risk as alcohol ingestion.

Source: https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/1162167

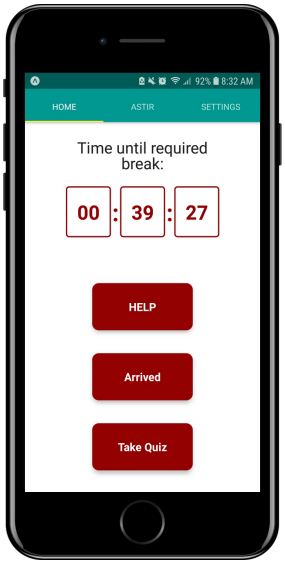
Based on police reports, the US National Highway Traffic Safety Administration (NHTSA) conservatively estimated that a total of 100,000 vehicle crashes each year are the direct result of driver drowsiness. These crashes resulted in approximately 1,550 deaths, 71,000 injuries and $12.5 billion in monetary losses.

Source: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.461.8158&rep=rep1&type=pdf

How ASTIR Helps

The App

Our app gives users the ability to test their reaction time (and compares these values to well researched estimates), add contacts to contact list if they are too drowsy to drive, and give updates as to their location to these contacts.



The Hardware

A camera that attaches to your dashboard detects when your eyes close for more than 3 seconds, and begins to vibrate until the driver opens their eyes again.

Made by [from left to right] Sebastian, Lauren, Ruby, and Elly.

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The Main Features

Initial Awakeness Test

Before even starting your drive, ASTIR will test your reaction time, and use this data to determine whether your reaction time is suitable for driving.

Drive with a "Buddy"

Have a friend who can monitor your drive, get notified when you need assistance, and who can cheer you on when you get to where you're going safely.

No Sleeping on the Road!

Our app has multiple systems to monitor drowsiness and help you stay awake or let you know when it may be time to pull over.

We don't just monitor drowsy driving, we help prevent it

ASTIR works better than current drowsy driving technologies because our app helps to either keep the user stay awake with break reminders or to determine a better course of action.

The Tech Stuff

Our App is made with Javascript

Used a React Native framework

Our Facial Recognition uses open CV

Link: https://github.com/ellyrichardson/HackKU-2020_Drowsy-Detection
Source: https://data-flair.training/blogs/python-project-driver-drowsiness-detection-system/

Our Camera is powered by a Raspberry Pi 4

It includes a light sensor that checks darkness levels and lights users face if needed.

- We used Amazon Web Services (AWS) to set up our server
- Our contact database uses Twilio
- Our application is WCAG AA compliant and based on color theory studies