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Innovation Expo

Drive: Drive Safely

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a) Introduction

1. Features and Specifications

Most handset devices and tablets have an **accelerometer** and a magnetometer, but fewer devices have barometers or thermometers. (https://developer.android.com/guide/topics/sensors/sensors_overview, 2019). With that said, this app utilizes our phones' built-in accelerometer. After prompting the user to automatically activate Drive if it detects high-speed movement. It turns the screen black, muting notifications whenever it detects motion with speeds as low as 20m/s, forcing drivers to position themselves in a safe area when there is a need to use the phone. But not turning it inoperational, for the threat of urgent, emergency calls are present. To accept a call, one must utilize his voice. Instructions on how-to included. The app also gives out reminders at random, showing statistics of

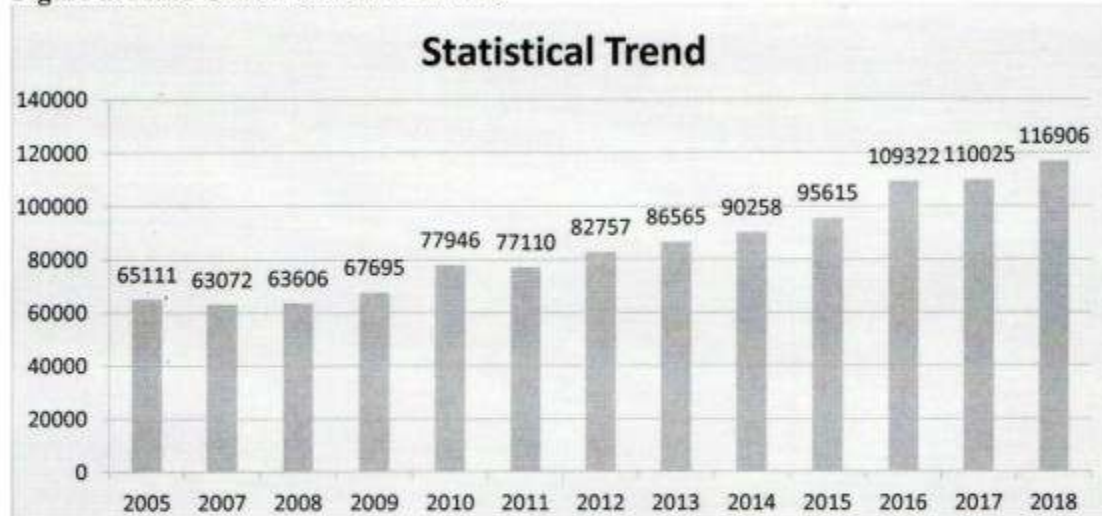
2. Market Trends and Opportunities

People know they shouldn't text and drive. Overwhelmingly, they tell pollsters that doing so is unacceptable and dangerous, and yet they do it anyway. They can't resist. So safety advocates and public officials have called for a technological solution that does an end, run around with free will and prevent people from texting in the first place. (Richtel, 2014) Texting while driving is **six times more likely** to cause a car accident than drunk driving (<https://infotracer.com/driving-records/texting-and-driving-safety/>, 20??)

Comparison of Data

Year	Total Number of Fatalities
2017	434
2018	394

Figure a: Road Crash Statistical Trends



TEC-RSU-MMARAS-AR-2018

Certified True Copy of the Original
Amelia F. Buhat
A.O. IV-TEC

<http://www.mmda.gov.ph/images/Home/FOI/MMARAS/MMARAS-Annual-Report-2018.pdf>

Technology is at its peak, and safety is an app: this is Drive. Instead of blaming cell phones to be the mainspring of accidents, let it (and discipline) be the foundation of road safety. With the needed sensor integrated even into a low-end phone. The said mobile application discourages drivers and commuters alike from using their phones in an accident-rich environment we all live in.

The significance of this app is its simplicity and accessibility. While other innovations use computer vision, AI for eye-tracking, establish a connection with a network carrier to cut off the signal when in the car. Though it gets most of the job done, they require additional expenses plus setup hassle.

c) **Materials and Methods**

Dating back from the very first smartphone released, if you look at its specifications, you'll see that each and every one of them has accelerometer support—even up to this date. For extra information, an accelerometer is a device that measures acceleration, the rate of change of the velocity of an object. They measure in meters per second squared (m/s^2) or in G-forces (g).

(<https://learn.sparkfun.com/tutorials/accelerometer-basics/all>, 20??)

Not many resources aside from time, knowledge and a computer is required to develop the app with Android Studio, measuring the speed with Google Science Journal.

(SCREENSHOT OF GOOGLE SCI JOURNAL)

When it all comes down, the system follows this basic logic: (in Layman's terms)

```
Loop: Read Phone Accelerometer speed ----- (> 20m/s) ----- = restrict access    (in motion)
      |
      ----- (0m/s) ----- = do nothing      (idle)
```

For a more thorough explanation, here is the code used in the development of Drive:

SCREENSHOT

All in all, the development of even simple tasks, I consider the coding to be of intermediate level.

But with these resources found online, things worked out a bit better:

- <https://developer.android.com/guide>
- <https://stackoverflow.com/>

f) **Results and Discussions**

f) **Conclusion**

With cases of distracted driving/walking down. We can now focus on other contemporary issues like traffic management. All that's left to do now is reinforcement for proper education and discipline. To make sure every citizen turns against its evil ways and become a law-abiding one. It might be subtle, but getting the habit of only using the phone when you're in a proper area and situation does a lot for you and the people around you.

Following Drive's success, I can then head on to and partner with the reputable navigation app, Waze—now you can arrive at your destination quickly and safely. Inspire other innovators, lawmakers, even students to collaborate together. Start a Responsible Driver Program for the world to have 100 percent, safety-conscious drivers. Promoting defensive driving along the way. Because discipline, no, a better, safer, crash-less world starts with you.

g) Acknowledgement

I would like to express my gratitude to my family for helping me in every path of this project, and by help I mean really help out with my app, papers, mental and emotional stability, and display board. Without them, I couldn't have done this in 3 days. As well as my school, Marigondon National High School for continuously feeding me opportunities and applying just the right amount of pressure.. To our Almighty God for breathing life into me and my last-minute research, I give him my eternal thanks. Doing a lot of studying, I came to know about so many new things. I am really thankful to them. The wisdom and knowledge gained are going to be treasured. It shall live on forever.

g) References/Bibliography