NoStress GPS: Transparent HUD

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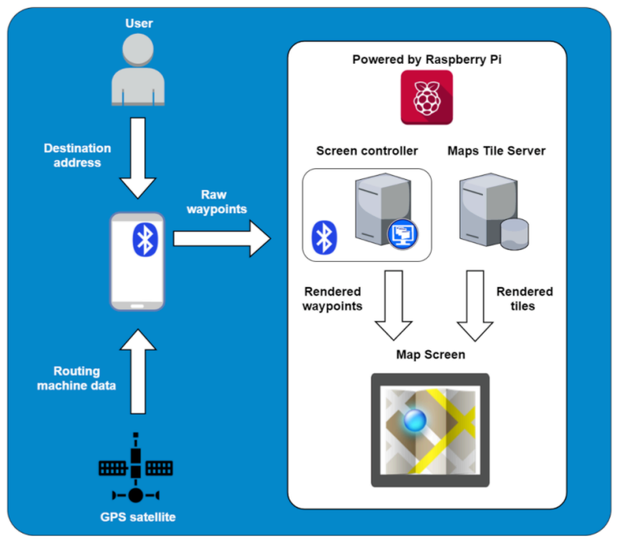
INTRODUCTION

- Distracted driving is one of the leading causes of car crash fatalities in BC
- One of the most common distractions behind the wheel is a mobile electronic device. People these days rely on some type of navigation system, either using a GPS Navigator or a smartphone for this purpose
- However, reading or typing directions on a GPS while using a smartphone application for getting navigation instructions also cause drivers to take their eyes off the road
- At NoStress, we would like to improve distracted driving by introducing our product "NoStress GPS"
- NoStress GPS is designed to provide a safe and reliable alternative to the current competition and work around their limitations by offering a transparent display coupled with a simple and intuitive user interface, while being affordable to the average user

ICBC, "Distracted Driving," ICBC, [Online]. Available: http://www.icbc.com/roadsafety/crashes-happen/Distracted-driving/Pages/default.aspx. [Accessed 24 January 2017

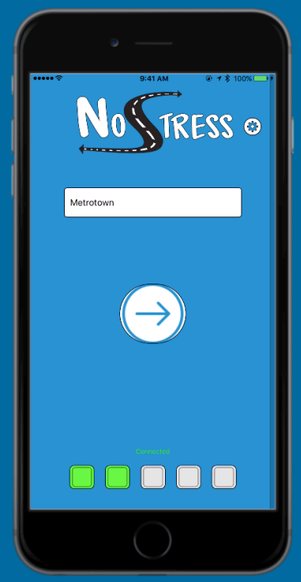
SYSTEM OVERVIEW



1. Enter destination

2. Click Go button

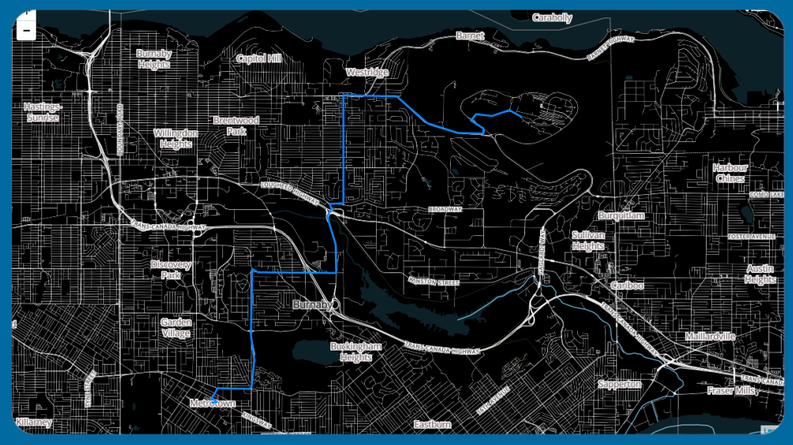
3. Follow directions on the GPS screen



Settings

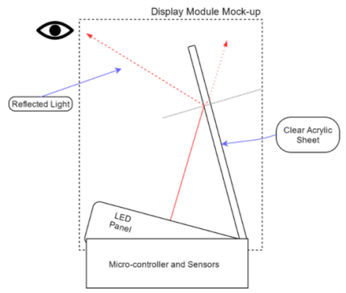
Bluetooth Connection State

Programmable Buttons



TRANSPARENT DISPLAY

- The transparent display is powered by an ultra bright display with a brightness level of 1000 nits
- As shown in the figure the reflection from the screen will be displayed on the acrylic sheet which is our primary means of display
- Anti- reflective coating on the transparent display will allow better visibility during daytime
- User will be able to see both the road and the GPS clearly



FUTURE WORK

For the prototype version, we will do the following:

Add accelerometer to the GPS module to track the car's velocity; the GPS module will display a warning if the user is exceeding the speed limit
Improve the performance of the GPS system while minimising the cost
Decrease the overall size of our product by printing out a custom PCB
Introduce data compression to facilitate faster transfer from phone to Raspberry Pi via Bluetooth
3-D print the enclosure to house all the parts securely
Develop a mechanism to mount it on the dashboard directly in front the driver
Develop a user manual for our product

CONCLUSION

- NoStress GPS will revolutionize HUD navigation by providing customers with a cheap, distraction free navigation system.
- Using NoStress GPS, the drivers will be able to pay attention to the road ahead at all times
- NoStress GPS comes with an intuitive User Interface, coupled with reliable hardware which makes it a strong competitor against existing navigation solutions
- Our aim is to sweep the market of existing GPS systems and "drive" our product to every household

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