UC SANTA CRUZ
Baskin Engineering

Capstone Project

Designated Driver Service

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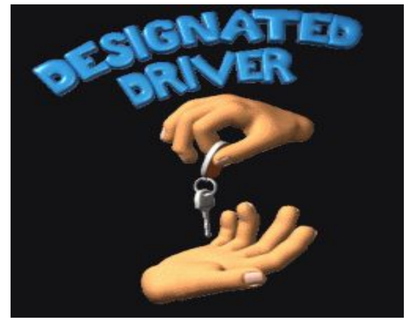


Abstract

Today, more than 70% of car accidents are caused by drunk drivers. Intoxicated drivers are unwilling to abandon their cars overnight in an empty lot or on the streets and are left with no other choice but to drive back home intoxicated. As many are well aware, this could result in a tragedy. We aim to eliminate this problem by introducing our app - Designated Driver Service. With Designated Driver Service, you can enjoy a pint of beer and arrive home safely. You will not have to worry about leaving your car abandoned and unprotected because Designated Driver Service will bring you and your car home. So now you can relax and have a great time with friends!

Approach

To create the user interface for the web app, we decided to use Vue.js, a JavaScript framework, for the frontend. For the backend, we used Firebase to manage and query the database and Express.js for the payment method.

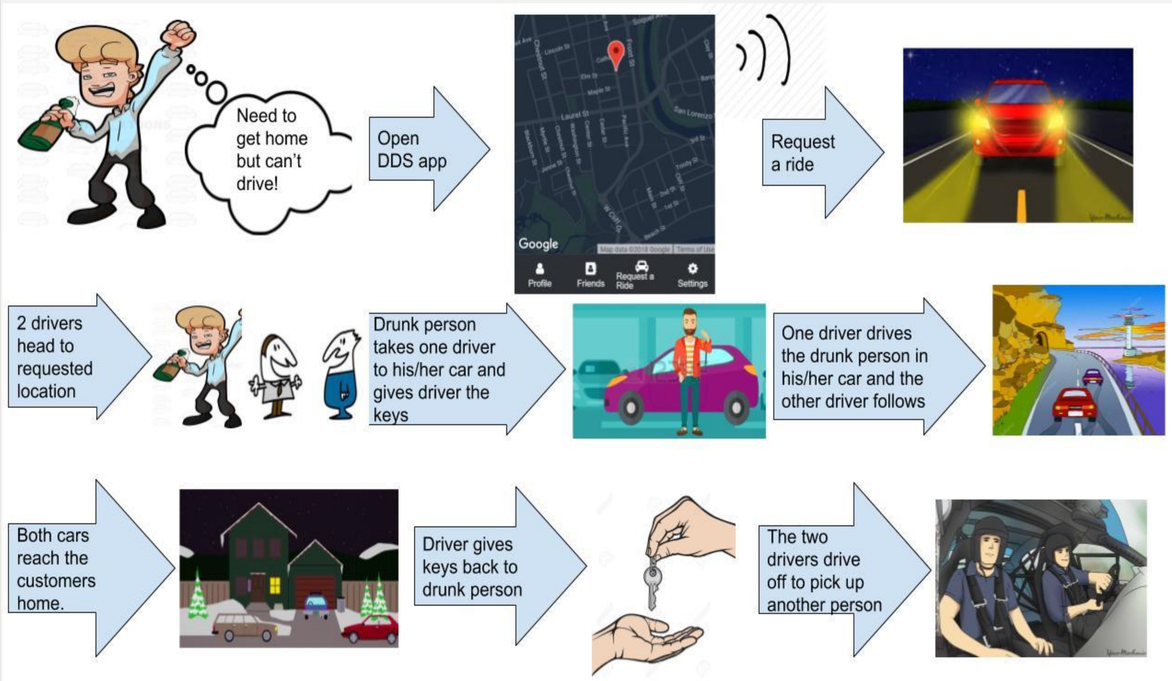
We created two separate accounts: driver and customer. A driver will create a profile and can find other partners via a unique driver ID. Customers will be able to create an account where they can request rides and input payment methods. To process payment methods, we decided to use Braintree - a division of Paypal which handles the payment process.

When the driver and the partner, who are in the same car, are within a certain radius of the customer's location, the driver accepts the customer's request for a ride. Once the ride is over, the driver's confirm that the destination has been reached and the service ends.

Overview

Designated Driver Service not only facilitates how customers get home safely after a fun night out, but it also ensures that the customer's car is brought back to safety at the customer's home. By bringing back the customer's car, this prevents any damages to the car, such as window smashing or scratches, and puts the customer at ease knowing that his/her car is not prone to harm. With the click of a button, the customer requests a ride from two certified drivers to his/her location. One driver, with the customer as the passenger, drives back the customer's car to the desired location while the other driver follows. Once the destination is reached, the driver parks the customer's car, the customer gets off and is given his/her car keys. Both drivers then leave to pick up another inebriated person.

Process Model



Acknowledgments

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Challenges

- ***Finding an optimal strategy for the project***
  One of the most difficult aspects of this project was the logistics of linking the two drivers and the customer in order to get the customer and their car home.
- ***Finding technical solutions for the project***
  Most of the team did not have a lot of experience with web app development or working with servers, so two difficult tasks was linking the two drivers in Firebase and setting up the server for the payment system.

Results

- Simple interface that any inebriated person can use with ease
- Driver profile has their basic information, car model and unique ID
- Customer profile has their basic information and payment method
- Customer can choose a location for pick up or use their current location
- Customer can choose from their past used cards, or add a new card, to pay for the ride
- Driver confirms that the destination is reached

Conclusion

Looking back over the past six months, we came very close to producing a functional, distributable app. We were able to achieve many of our high-level goals, but a few improvements should still be considered to be implemented. One improvement that needs to be done is for the app to automatically end the ride once the destination is reached instead of the driver manually ending it. Besides this, legal issues, such as insurance confirmation, and company liability associated with the deployment of this app must be addressed before this app can be considered for commercial release.

Although this web application was intended for people who are intoxicated, it can also be valuable to all types of people that lack the ability to drive their car back home. For example, some people cannot drive back home after a visit to the doctor or dentist and do not have a friend to drive them and their car back. In the future, this application plans to target a larger audience than just inebriated people.