Capstone Senior Design
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Project Proposal

For the first time in this world history, there is definitive and accepted scientific evidence that we are killing our earth at an astonishing rate. It has been proven that at the rate we are using our natural resources, we will need as many as 7 planets to sustain our way of life. This fact is just one of the reasons why I have chosen to develop a mobile application that will make users more mindful of how much they are hurting the planet, in hopes of making them decrease their impact on the planet. My application will have various components to try and make people more conscious of how much they are harming the earth.

One of the main parts of this application will automatically follow the users traveling patterns to see how much carbon/greenhouse gases they emit on their trip. I chose to implement this feature because the use of fossil fuels is a leading cause of carbon dioxide emissions, therefore a playing a leading role in the demise of Earth's atmosphere. The application will use a phone's GPS to find out where the user is going and how fast they are going to determine what kind of transportation they are using, whether it be by walking, using a car, or using public transportation. For example, if they were walking, the application will know that the person is moving on the side of a street at the speed of 5 mph. This would mean that the user would not use any form of vehicular transportation. However, if they are driving, the application will understand that the user's GPS is moving at a speed way too fast for them to walk. If they were using public transportation, such as a bus or the metro, the application (using google map's API) will understand that because of the frequent stops and the preset bus routes. Another way the application will help a user emit less greenhouse gases is by telling the user the routes with less traffic, and therefore less idling time, so that they will use less gas on their drive.

The algorithmically challenging part of this idea is how the application will automatically figure out which kind of transportation the user is on, and how it will calculate how much carbon dioxide/greenhouse gas the user used on their trip. The way to overcome these problems will be to figure out what kind of transportation the user is on (including models of the vehicle), if they are sharing this type of transportation, and how bad the vehicle is for the environment. For the first problem, I will be using the GPS' help by figuring out how fast the user is going and if they are on a bus or metro route making frequent stops. The hard part is in instances such as if the user's car was right behind a bus, or when the trip ends. If the application is confused it will have a very simple pop up question on a phones home screen prompting the user a question such as, "which kind of vehicle are you in?" The application will understand that the trip is over by seeing if the person is inside of a building or if they have stopped moving. The application will know how much carbon dioxide the DC bus and metro systems have emitted, but the tricky part is trying to find a way to get the application to figure out what kind of car they are in. When the prompt pops up and if the user taps car, it will direct you to another drop down option where the user can select the car's make and model.

At the end of each day, the user will be informed and shown a comparison of their daily carbon dioxide emissions, essentially showing if they harmed the earth less or more that day. It will also give them some personalized feedback on how they can reduce their transportation carbon footprint the next day. For example, the application can tell the user to use a different route on the road or to try a different means of transportation. The application will also show a user's ranking in their local community (as identified by GPS) to see if they are helping the earth more or less than the people in their community.

The environment is a cause that I am not only passionate about in my lifestyle, but one that I foresee others will soon want to be present in their lifestyles. Each day, more people on this planet are experiencing and realizing the effects of climate change. This topic is heavily debated currently not only in U.S. politics, but on a worldwide scale. I hope that the result of me creating this app is to not only help those who are mindful of their impact on the environment, but inspire those who do not have an established interest to actually care for the planet.