STAYSAFE

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Overview of Problem and solution

Delivery drivers getting shot, robbed, and vandalized are common in the news these days. According to nypost.com, attacks against taxi drivers have risen in New York to over 400 attacks per year [1]. It is unsafe for taxi and delivery drivers to drive around and do their job. Regular drivers can avoid dangerous situations, but the delivery drivers are often bound to drive to these bad areas because of their job. Our original idea was to stay away from crime, but after researching and performing contextual inquiry, we propose to keep these drivers aware of the situation and help them out if they find themselves in the dangerous situations. Our solution helps the user find the criminal history of their destination with the crime stats feature, find the number of people (suspects) that are around or near the exact destination with use of infrared feature, and get the help they need when they are caught in dangerous situations with the Panic feature. This will help them to be aware of the place and the situation they are going to be in, and find help in the most convenient way when they are in trouble.

Task updates/Description and interface sketches

The ideas of the sketches we had for project two are very similar to the sketches we’ve created for project three. The differences are rather slight.

We implemented three major task accomplishments through this design. The first one is Panic feature. Our idea about the Panic feature is same but the UI to accomplish it has changed a little bit from the last design. In the last design, we used a circle and the user would press the circle button to call the police. This time, we automatically call the police when the little help button is pressed, and it takes you to a screen (with a square instead of a circle) that asks if you want to cancel the call to police instead of make the call.
The second task is the crime stats feature. Again, our idea of this task is still the same but the UI has changed a little from the last time. We had thought of using flags or X’s that mark where crimes are, in the last design. But in this iteration, we decided to have a feature that would turn off the crime statistics in case the user didn’t want it or if it were distracting. Now, when they activate it, the crime statistics show up as dots to mark where the crimes have taken place.

The third task is the infrared feature which did not change much from Project 2 except for
refining the UI by adding color while red is the common color to show living beings and cooler colors for nonliving things.

When designing our interface for project 3, we started with forward and back arrows at the top of the screen. We thought that might be confusing on a GPS, and the user might think that they are right and left turning arrows instead. So, we moved the arrows down, but we still encountered the same problem. Finally, we made them smaller, more like Internet browser forward and back buttons, and placed them at the very bottom of the screen as part of the template (see template definition below).

The last major change we had through the iterations was the location of the option buttons. Our device has many different options for viewing the screen, such as crime stats on/off, infrared on/off, faster or safer path to destination, and different map views. We originally had all of these buttons on the map view screen, but it seemed too cluttered. We removed all of these buttons and added them to the options screen. Then, we re-thought this, and decided that since these options were the main focus of our device, they should be at front and center. We added the crime options on the set destination UI. The user can now turn that on/off while setting the destination. Also, we added crime stats toggle button in the main template (see description of selected interface for template description) so that the user can turn on/off during the map view. Infrared is one of our main tasks that we are implementing, which we
kept on the template, so it would be accessible all the time. We felt that the user would not be setting the faster or safer path while driving, so we placed it in the options UI. We also added front or map view toggle button on the right top corner of the UI to make easier accessibility.

**Description of Selected Interface Design**

We will utilize a template that will be used in all UI.

**Template:**

The template consists of the Home Page icon, help icon, Infrared Icon, Crime stats toggle button, back and forth buttons at the bottom of the screen. Most of our UIs are built on top of this template. Depending upon the UI currently in, the icons may be grayed out or not present. For example, when we are in the infrared UI, the infrared button is grayed out. We chose this template because it consists of all the major tasks we are trying to implement, and added back and forth buttons for easy navigation.

**Home Page:**

Our homepage will have three main buttons, Destination/crime stats, Infrared, and options/settings. Since our three main tasks are to find the crime reports, have the infrared vision, and have a Panic feature, we designed to incorporate these features along with basic GPS functionality. Just to keep help handy, we keep Panic button (HELP) in the template.

Destination/Crime Stats: This button helps to find the destination and also to achieve the crime stat task. Pressing this button leads to the destination and crime stats UI.

Infrared: This button is one of three task achieving buttons. This button leads to the infrared vision screen.

Options/ Settings: This button is to help the user lead to the settings page.
Set Destination:

This UI is designed to help the user input the destination and can select crime stats on or off. There are two text boxes, start and end. The start text box is by default populated with the current location. The user has the capability of changing the start location if he wants. The end text box is where the user inputs the destination address. There is a crime report on and off radio button where the user can turn the crime stats on or off. There is a touch keypad embedded. The user finalizes this task by pressing the “OK” button.

The page looks like standard destination set up page. We used a radio button to turn crime stats on/off because we want the user to choose only one of two options at a time.

Map View without Crime Stats:

This UI shows the map from the starting point to the destination. This is the broad picture of the map. The top left corner displays the vehicle speed and the max speed. The top middle part displays the destination and remaining time and distance in miles. The top right corner is the toggle button to shift from Map view to front view. This UI gives a broad picture of the route and the information at the top helps the user estimate the travel time.

Front View without Crime Stats:

This UI shows the front view of the direction. The top left corner displays vehicle speed and max speed. The top middle part displays the direction where we should turn and at what distance. The top right corner is the toggle button to change into map view.

We want to have this UI on top of the map view because this view gives a closer view of the roads. Also it synchronizes the front view with the movement of the car. Other than that, we kept the information part at the top for the convenience of using the system.
**Map View with Crime Stats:**

This is similar to the “Map View without Crime Stats,” but with crime stats displayed. We used light red dots to represent the crimes, because we don’t want to overshadow the route with the colors. Also it helps to realize the intensity of crimes.

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**Front View with Crime Stats:**

This is similar to the “Front View without Crime Stats,” but with crime stats displayed.

It helps us to see the crime stats at a specific point.
Options/Settings:
This screen has the option to:

• Set how safe or how fast the route is
• Set voice code for the panic feature
• Set common functionalities of the device

Set Voice Code:
This screen, found in the options menu, is for setting the voice code for the panic feature. It has four buttons: start record, stop record, play, and done, which will start recording, stop recording, replay the recorded voice, and then finalize respectively. We use this interface design because it gives visual feedback that voice recording is happening, as shown in the picture.

Voice Code Set:
Screen shown to confirm voice code has been set. We chose to use this screen because it is simple and gives us feedback for what we just did.
**Calling 911:**

Screen shown after pressing the help button to confirm help is needed. Press CANCEL to cancel if the help button is accidentally pressed. We added it to avoid the Midas touch.

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**Front View (HELP ON):**

Screen to show panic feature has been activated by voice and that police is being notified. When doing storyboarding, we decided to have the help button blink three times to show the user that it was activated. When doing video editing, this was not feasible and we therefore just kept the help button lit. We tried to keep this feedback part secret, because the robber should not know that law enforcement is being notified.

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**Infrared View on:**

This is a view of the foreground showing any people. We were originally thinking of having infrared view to have the same view as front view. Then we realized that there would be a camera on the dashboard pointing out front, so we had to change the idea of having a front GPS view to having an actual view of what the camera would see.
**InfraRed Scenario w/out StaySafe –**

1) Driver pulls up to address to deliver package.

2) He gets out of the truck to deliver the goods and fails to realize there is a thief hidden behind the dumpster

3) The thief dashes from behind the dumpster and assaults the delivery driver taking his goods.

4) The thief runs away taking away the goods

Looks like I got the right

Gimme all you got man!!!
With StaySafe

1) Driver pulls up to address to deliver a package

2) Before getting out of the truck he turns on the infraRed and realizes there is someone hiding behind the dumpster.

3) Driver calls the client to confirm the address but no one picks up.

4) The Driver finds the delivery location to be shady and senses this could be setup. He drives away.

No one is answering; It could be a trap.. Better be safe than sorry!
Help/Panic Button Scenario w/out StaySafe

1) Taxi Driver is waiting for potential clients while chatting on the phone.

2) An apparent customer comes up and knocks on his window asking him to roll the window down.

3) As soon as he rolls down his window, thief pulls out his gun and demands his wallet and cell phone.

4) The taxi driver hands over his wallet and cell phone without hesitation.

5) The thief runs away.

Gotcha Sucka! The Gun wasn’t even real!!

What now?!
With StaySafe

1) Taxi Driver is waiting for potential clients while chatting on the phone.

2) An apparent customer comes up and knocks on his window asking him to roll the window down.

3) As soon as he rolls down his window, the thief pulls out his gun and demands his wallet and cell phone.

4) The taxi driver yells out Heeeeeeellp!

5) Voice activated feature auto calls 911. The HELP button flashes three times letting user know that help is on the way.

6) Police arrive on the scene.

Put Your Hands in air! You have the right to remain silent! Anything you say...
Crime Stats Scenario w/out StaySafe

1) Taxi driver gets a call from a potential client asking to be picked up and drives to location.

2) He does not know that this is a setup; there is a robber hiding in the bush.

3) The robber dashes from nowhere and comes close to the car.

4) He threatens to shoot if he does not get out of the car.

5) The robber drags the taxi driver out of the car.

6) The robber jumps in the car and drives away.

7) The taxi driver runs after the car screaming for help out of desperation, but little does it help.

What am I going to do!?!?
With StaySafe

1) Taxi driver gets a call from a potential client asking to be picked up

2) He checks CrimeStats using his GPS and notices the area has a high crime rate and reasons the its best if he does not take this client to preserve himself from danger.
Video Prototype Report

For the video prototype, we had three scenarios. For each scenario, we split it into two phases: one phase of potential things that could happen when no safety device was being used, and the next phase when the device is used. We used paper cutouts with hand drawings of the interfaces (paper prototypes). After the user presses a button on the paper, one of the team members would take that picture out and replace it with the next interface. This was not too much of a problem, because usually only 2 members were acting, one member was filming, and the last person would be able to switch the pictures of the device. We switched the roles so everyone had a chance to do the three jobs at some point.

One problem that we had was finding props and a police costume. For the robbers, they would just put on a hoodie and sunglasses to look like a thief, but the cop would have to have a uniform, which we did not have. We cut out the idea of anyone getting arrested by a cop in plain clothes and just left that to imagination.

For the robber, we had difficulty finding a nice weapon that seemed real for the video. We used a long lighter as a gun, and worked with that. Besides that, we think we were able to capture the videos well. We created a scenario where a driver gets into a problem, and gave a solution to that problem that uses the StaySafe product.

References