Prototype Script

The APCAS prototype is a simple, easy to use, simulator to execute scenarios as defined by the user. Upon starting the prototype, the user is presented with an empty data chart and graph that will be automatically populated to display the data of each scenario that is executed. The user is also presented with two buttons: a "Start" button and an "Edit Parameters" button.

Upon pushing the "edit parameters" button, a few things become visible. One of those things is a drop down menu labeled "Preset Scenarios…". This menu is filled with ten predefined scenarios that are labeled into three categories that describe the movement of the pedestrian: moving-then-stopped, static-then-moving, and static. If the user selects one of these, the prototype automatically populates all of the parameters with values to recreate that scenario. Along with these ten preset values, the user is also able to change any parameter he or she chooses, as long as it is within the range of the parameter. If a value entered is out of range, the user is alerted when trying to press the "Done" button and told the range that the value must be in. If the user wishes to start over, a "Clear All Values" is available that enters zeros in all of the parameters. Once the user has entered all of the parameters for a scenario, the "Done" button must be pressed to lock in the values.

When the "Start" button is pressed, the data chart is cleared of any information and the scenario begins executing. The data chart is then populated with new information about the scenario being executed. Unlike the data chart, the graph does not reset upon each new scenario. It displays information about all of the scenarios that have been executed in order to get a visual representation on how the vehicle's behavior has changed. In order to clear the graph, the user must press the "Clear Graph" button, located in the top-left corner of the graph.

There are two ways for a scenario to end. The first way is when the vehicle reaches the end of the road. The other way is when the user presses the "Reset" button. Upon pressing this button, the data chart and graph stop updating and the user is able to play the scenario again, or go back to edit the parameters.

Step-by-Step Instructions

1.) Click the "Edit Parameters" button to change the values of the scenario
2.) Set the values for the scenario in one of two ways:
    a. Select a predefined scenario from the "Preset Scenarios…" drop down menu
    b. Enter in the values manually
        i. Vehicle Parameters
            1. Speed: value, in meters per second, of the vehicles velocity must be between 0 and 40
            2. Position: value, in meters, of the vehicles starting x position must be between 0 and 60
        ii. Pedestrian Parameters
            1. Speed: value, in meters per second, of the pedestrians velocity must be 0 or 2.8

2. Initial Position: x and y value, in meters, of the pedestrians starting position. The x position must be between 0 and 60. The y position must be between -10 and 10
3. End Position: value, in meters, of the pedestrians ending y position must be greater than the initial y position. If left blank, the pedestrian will never stop moving.
4. Delay Before Moving: value, in seconds, of the time the pedestrian waits before starting to move at the specified speed

3.) Click the "Done" button to lock in the values
    a. If any values are out of range, an error message will be displayed
4.) Click "Start" to begin the execution of the scenario
5.) Click "Reset" to stop the current scenario and return the vehicle and pedestrian to their initial position
6.) Upon each scenario executed, a graphical representation of the vehicles speed is plotted on a line graph at the bottom of the screen
    a. Click the "Clear Graph" button to clear any lines that have been previously drawn