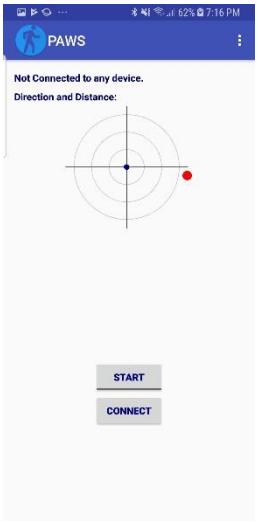
PAWS LE Smartphone Application Manual

I. Setup

Before running the application, copy the “SEUS” folder into your phone’s “Download” folder. This folder contains the machine learning models used in the application.

II. Using the Application

After launching the application, you will arrive at the screen shown below.



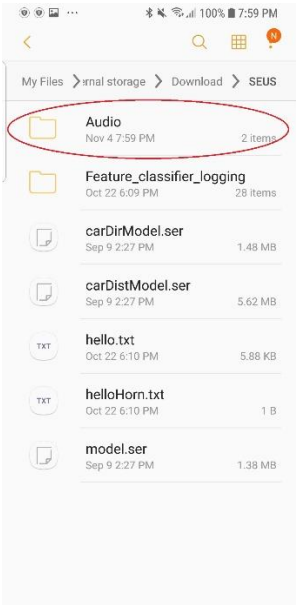
To connect the smartphone application to a PAWS headset via Bluetooth, press the “Connect” button and select the appropriate connection (generally “Nordic_UART_0”). The headset provides car direction estimates to the smartphone application.

To begin running the application, press the “Start” button. If a car is detected, a quadrant in the polar graph will light up. If the headset is connected to the smartphone application, this quadrant will correspond to the relative direction of the car estimated by the headset. If there is no headset, then this will just be a random quadrant. Press the same button again to stop the system.

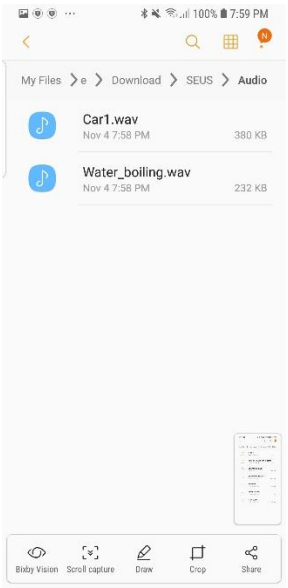
III. Training a New Detection Model

You may want to train your own model for car detection. To do so you must:

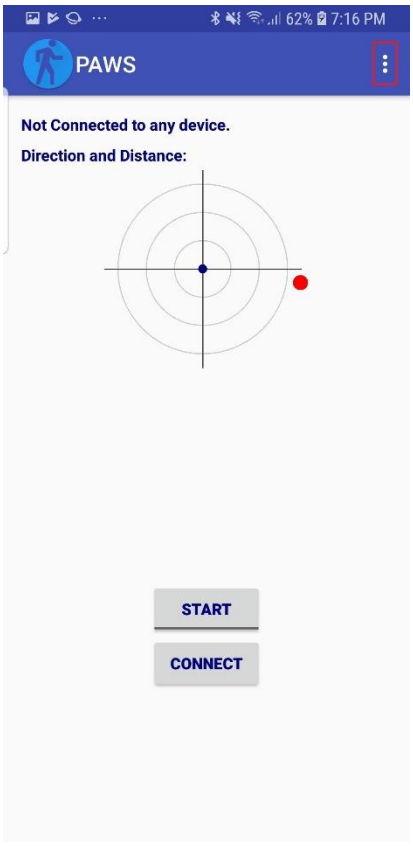
1. Create an “Audio” folder inside the “SEUS” folder you placed in your phone’s “Download” folder from part I, as shown below.



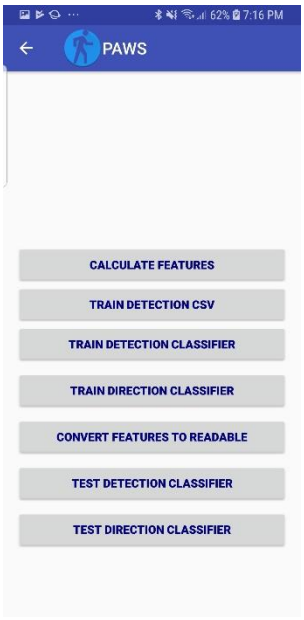
2. Record audio clips of cars and non-car street sounds using a free recording application such as “Easy Voice Recorder”. Make sure to set the sampling frequency to 48 kHz, as the PAWS application uses 48 kHz, and save the files inside the “Audio” folder that you just created. Car sounds should have “car” somewhere in the name, and non-car sounds should not contain “car” anywhere in the name. An example is shown below.



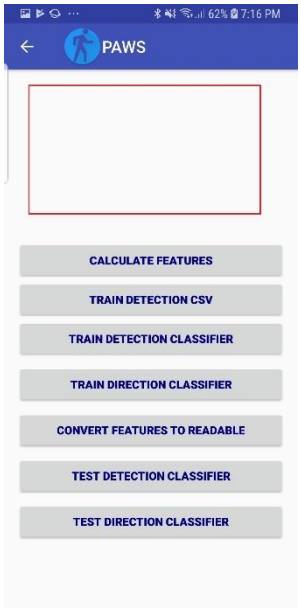
3. Inside the application, tap the triple-dot icon in the upper right corner and select “Train Classifier”



4. On the new screen shown below, first tap the “Calculate Features” button to extract the features from the audio files.



5. Wait until some text shows up in the display telling you how many files were processed and number of features extracted. The text will show up in the area marked in red below.



6. Next, press the “Train Detection Classifier” button to train the models and wait for the display to update, which will signify that the training is finished.
7. Restart the application to use the new models.