

6.111 Checklist

- Speech
 - Software prototype - Implements voice recognition in Matlab.
 - Aakanksha
 - Audio data sample rate - Downsamples mic input to 16kHz.
 - Aakanksha
 - Setup UART cable - Allows for transmission of data to computer.
 - TBD
 - Verify FFT works - The FFT behaves as we expect.
 - Aakanksha
 - Filter frames - Differentiate frames in which vowels are spoken from silence or other sounds.
 - Aakanksha
 - Peak detection - Find the 6 highest-amplitude frequencies from the FFT
 - Aakanksha
 - Buffering & Averaging - Storing and averaging over past samples.
 - TBD
 - GMM PDF - Transforming a feature vector into a likelihood estimate (scalar) for each command.
 - Max/Log domain addition
 - TBD
 - Inference - Determine which command was spoken based on likelihood estimates.
 - TBD
 - Stretch goals - Implement an HMM instead of a GMM PDF!
 - TBD
 - HMM!
 - Hypothesis scores vary over time
 - Some kind of extra capability
- Visualization
 - Display relevant objects/map - Show car and map on screen.
 - Carter
 - Respond to movement control - Car moves with button presses on FPGA.
 - Carter
 - Collision detection - Car stops moving when colliding with a wall.
 - Carter
 - Finish line, done screen - Handles done screen and general state of visual example.
 - Carter