

For our demonstration of sensing technologies, we plan on taking two simultaneous routes, splitting up our team to do so.

The first route involves using IR beams across entrances and exits of parking garage sections to determine car occupancy. Tasks to be completed in this path include finding the correct IR laser/receiver to utilize, interfacing that with our kit boards (to save time building a custom board before December), writing the code to detect motion and direction, and demonstrating this all with a toy car setup and terminal output. The output should tell us how many cars are in the “garage” and update whenever a car enters or exits.

The second route involves video processing to detect occupancy. Tasks in this path include learning how to edge detect and track motion using video in MATLAB, choosing the board and software language we would actually be using in our completed project, and making sure we can network multiple video sources together. To demonstrate, sample videos will be made (both in natural lighting and in a parking garage) of vehicle motion. Output will be produced showing we can both detect motion and direction of a car in software.