Guidelines for Level 2: Stairs

EE180D, Fall 2013

Deadline: End of the day on Friday, October 25.

States:

- Standing
- Walking up stairs (climbing) at speed 1
- Walking up stairs (climbing) at speed 2
- Walking downstairs (descending) at speed 3

Testing script:

- Stand, 15sec
- Walk up two floors of steps at speed 1
- Stand, 30sec
- Walk down two floors of steps at speed 3
- Stand, 15sec
- Walk up two floors of steps at speed 2
- Stand, 15sec

Optional features to add:

- Detect when user is on a landing (flat portion between flights) while walking up or down stairs. This may be classified as walking, and thus increasing the number of states.
- Other additional features can be added as you see fit.

Notes:

- Use a timer/stopwatch to ensure that climbing and descending speeds are consistent between training and testing. These times and speeds will be useful in creating the ground truth.
- A metronome may be useful to get consistent walking/climbing/descending speeds.
- Speed 3 (walking down stairs) should be a comfortable, and safe, speed for walking downstairs. Speed 3 may equal Speed 1, but it may not.
- Training segments can't be too short, or you will run into the "K (10) is too large" error.
- In additional to feature selection, sensor placement is a design element that you will need to design.
- Please follow the testing script.