

Name: Quang Phung  
Course: CSCI 3081W  
Instructor: Amy Larson  
Date: April 24 2018

## Refactor

The purpose of this document is to record two changes to variable names that did not have meaningful names. For each variable, the document includes a list of files and lines of codes the change affects, the old and new name, and a brief explanation of how the new name is better than the old one.

1. `velocity_delta_` -> `updated_velocity_`
  - a. Files: `sensor.h` (line 89, 96, 200), `light_sensor.cc` (line 37, 39, 42, 43, 48, 50), `food_sensor.cc` (line 41, 43, 46, 47, 52, 54)
  - b. Old name: `velocity_delta_`  
New name: `updated_velocity_`
  - c. The original name which is `velocity_delta_` does not reflect the correct purpose of this variable. The purpose of this variable is to convert the reading of the sensor to a velocity. The sensor then uses this new velocity value and updates the corresponding wheel that it is connecting to. In return, the new name which is `updated_velocity_` reflects the desired purpose of this variable. Changing the name in this way will help future programmers who want to implement new sensor to better understand the code.
  
2. `dist_sensitivity_` -> `coefficient_sensitivity_`
  - a. Files: `sensor.h` (line 194, 206), `food_sensor.cc` (line 25), `light_sensor.cc` (line 25)
  - b. Old name: `dist_sensitivity_`  
New name: `coefficient_sensitivity_`
  - c. The original name which is `dist_sensitivity_` does not reflect the correct purpose of this variable. I named this variable that way because I thought the purpose of it was to calculate the reading based on the distance of the sensor to the stimulus. But it turns out that the purpose of this variable is a constant coefficient that is used to calibrate the initial reading before updating the velocity. Programmer will change this variable to vary the sensitivity of the sensor. Changing the name in this way will help programmers to better understand the code if they want to implement new sensor in the future.