



E11: Autonomous Vehicles

Fall 2017

PS 4: Gold Code Correlation

Gold Code Generation

Write a single Mudduino file named `ps4_Lastname_Firstname.ino`.

Important: place the following comment on the first line of your program (where `xx` is the number of hours that it took you):

```
// Time to complete program = xx hours
```

Your program should build on Problem Set 3 to generate eight Gold Codes. For each of the Gold codes, it should compute the correlation against all eight Gold codes. It should print the correlation at each of the 31 offsets, as well as the correlation with the greatest strength. It should thus produce $8 + 7 + 6 + \dots + 1 = 36$ results, formatted as shown below for the first two results.

```
Correlation GC 1, 1:  
31 7 -9 -1 7 7 -1 -9 -1 7 -1 -9 -1 7 7 -1 -1 7 7 -1 -9 -1 7 -1 -9 -1 7 7 -1 -9 7  
MAX: 31  
  
Correlation GC 1, 2:  
-1 -1 -1 -9 -9 -9 -1 7 7 -9 -1 7 7 -1 -1 -1 7 7 -9 -9 -1 7 -1 -9 -1 7 7 7 -1 -1 -1  
MAX: -9
```

Deliverables

You are responsible for turning in your Arduino file to the “Resources/Problem Set 4” folder on the E11 page on Sakai:

```
ps4_Lastname_Firstname.ino
```

The file is due before class on Wednesday, October 11th.

Grading

Your code will be graded as follows

- 1.0 point for a program that compiles
- 1.0 additional point for a program that works according to the requirements described above.
- 1.0 additional point for your program being commented
- This results in 3.0 points maximum

Note that you will need to have this code working for the final project!