

Test Plan

In order to get the best performance of Pursuit, test scenarios must be conducted. We will have two different sets of test plans: unit test plan, where each unit is tested separately; and system test plan, where the product will be tested as a whole system.

1. Unit Test Plans

1.1 Motion Sensors and Motor Unit Test

The sensors unit and motor units are to be tested together. For each sensor, there are two test cases:

1. When out of sensors' range, motors do not respond.
2. When within sensors' range, motors activated.

1.2 Microcontroller Unit Test

Since to test the Microcontroller Unit, we have to connect the sensors and motors in order to have visual input and output, this unit testing has to be done after the Sensors and Motor Unit testing. The following figure shows how the sensors and motors are positioned.

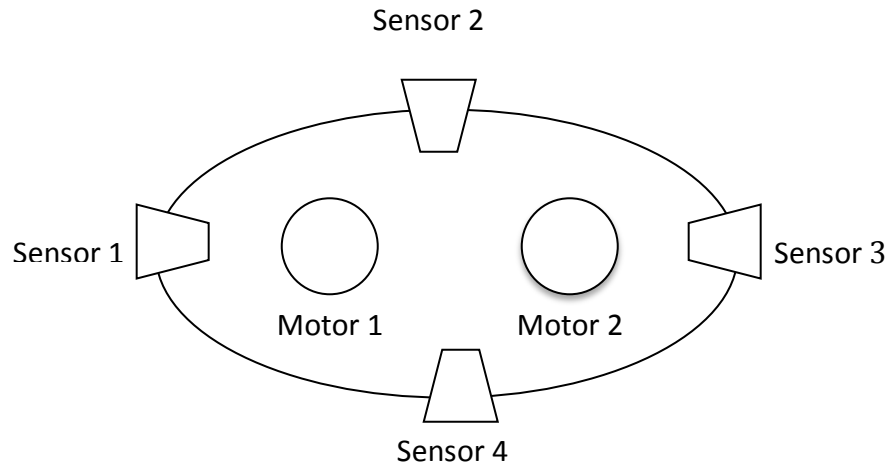


Figure 1: Sensors and Motors Positions

With this setting, we can construct the following test cases listed in the table below to test if the Microcontroller Unit is working as expected.

Active Sensor	Output
0	No movement
1	Motor 1 will spin in the direction towards sensor 2 and motor 2 will spin in the opposite directions. After a delay, motor 2 will spin in the same direction of motor 1.
2	Both motors spin in the direction towards sensor 4
3	Motor 2 will spin in the direction towards sensor 4 and motor 1 will spin in the opposite directions. After a delay, motor 1 will spin in the same direction of motor 2.
4	Both motors spin in the direction towards sensor 2

Table 1: Microcontroller Unit Test Cases

2. System Test

After all the internal units are tested and assembled, we can conduct the system testing. The following figure shows how the sensors are positioned, and a direction guide.

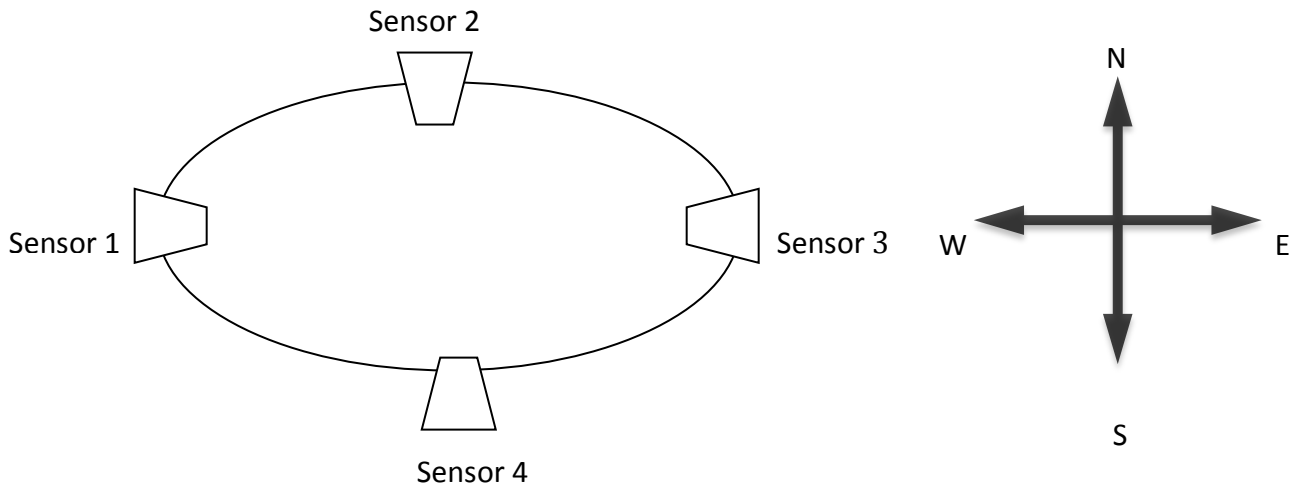


Figure 2: Sensors Positions and Directions

With this setting, we can construct the following test cases listed in the table below to test if the system reacted as expected.

Active Sensor	Expected Behaviour
0	No movement
1	Purrsuit will turn South, then roll towards East
2	Purrsuit will roll towards South
3	Purrsuit will turn North, then roll towards West
4	Purrsuit will roll towards North

Table 2: System Test Cases