**R003:**The Sensor board should be the correct size for the Mouse.

**AT002:**The freedom of movement of the Mouse should not be restricted by the sensor board., I.e. the Mouse is able to move around the maze.

**SP003:**Using a board with dimensions not exceeding 80x60mm.

Verified by

Fulfilled by

**R005:**The Mouse should be able to detect dead ends in the Maze.

**SP002:**Three sets of sensing components a sensing range of 0-150mm, and angle spectrum of 0-60

**AT005:**Testing if the Mouse can complete the Maze.

Fulfilled by

Fulfilled by

How?

A maze dead end would be an obstacle in all three sense directions, if all the three sensing components are properly and equally calibrated, they should sense obstacles in their respective directions.

**AT004:**Testing the switching behavior of the output.

**SP001:**Utilizing PWM or input switching behavior so sensor turns on/off at a specific frequency and duty cycle of 50%.

**R001:**Minimize Power Consumption.

Verified by

Fulfilled by

Verified by

**AT005:**Testing if the Mouse can complete the race without needing a recharge break.

How?

The input square wave will have a duty cycle of 50%, for example if the Mouse remains on for 60s, the sensor will be off for 30s saving a lot of power.

**AT001:**Observable change in output when obstacle is within 150mm of the mouse.

**R004:**The Sensor board should be the able to communicate with the control unit using the correct communication protocol.

**SP004:**Using I2C protocol on all ICs on the sensor board.

Verified by

Fulfilled by

Why?

To show that the sensor board works correctly an output should be observed if there is an obstacle in any of the sense directions.

Although the sensing range is 150mm, what is eventually needed is a 0 or 1 to either light up an LED or turn it off when there is no obstacle, a close obstacle would be within 50mm of the Mouse.

**AT001:**Observable change in output when obstacle is within 150mm of the mouse.

**AT003:**A significant change in the output when the obstacle is within an 80mm range, indicating that the ADC has captured the sense output.

Why?

**SP005:**

Observable output voltage on ADC for all three sense directions.

Verified by

Fulfilled by

**ROO2:**Valuable Sense Output from left right and forward directions.

Fulfilled by

**SP002:**Three sets of sensing components a sensing range of 0-150mm, and angle spectrum of 0-60.

Verified by