Sensors:

Hiletgo MPU9250 9-Axis 9 DOF 16 Bit Gyroscope/Accelerometer:

[Amazon.com: HiLetgo MPU9250 9-Axis 9 DOF 16 Bit Gyroscope Acceleration Magnetic Sensor 9-Axis Attitude +Gyro+Accelerator+Magnetometer Sensor Module IIC/SPI for Arduino GY-9250 : Industrial & Scientific](https://www.amazon.com/dp/B01I1J0Z7Y/ref=cm_sw_r_sms_api_glt_fabc_ENT3P44KQXMQNASRDHWD?_encoding=UTF8&psc=1)

A close-up of a circuit board

Description automatically generated with medium confidenceThis is the magnetometer sensor we currently have.

Notes:

This sensor is a magnetometer, accelerometer, and gyroscope. However so far only the magnetometer functionality has been of use. May look into only getting magnetometer for cheaper price if accelerometer is of no use. Gyroscope will be of no use going forward.

Cheaper 3 axis magnetometer only:

[Amazon.com: ACEIRMC 5pcs GY-273 QMC5883L 3-Axis Compass Magnetometer Sensor Board Module IIC/I2C for Arduino 3-5V Power High Accurancy : Electronics](https://www.amazon.com/ACEIRMC-QMC5883L-Compass-Magnetometer-Accurancy/dp/B08T239MLY/ref=sr_1_5?dchild=1&keywords=magnetometer+IC+3+axis&qid=1632186325&sr=8-5)

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Description automatically generated

Note: Cheaper packaging only includes magnetometer. This option can read magnetic changes through objects making an ideal option because exposure is not required. We need to be able to protect sensor packaging from debris.

Time of flight sensor Vl53l0X:

[Amazon.com: Adafruit (PID 3317) VL53L0X Time of Flight Distance Sensor - ~30 to 1000mm : Electronics](https://www.amazon.com/Adafruit-VL53L0X-Flight-Distance-Sensor/dp/B01MTSVU1E/ref=sr_1_3?dchild=1&keywords=adafruit+time+of+flight+vl53l0x&qid=1635020230&qsid=138-1350617-2163110&sr=8-3&sres=B01MTSVU1E%2CB01N0ODI3Q%2CB07XXTMRR2%2CB00K9THV04%2CB00NAY1B2Y%2CB07Q5Y3G4C%2CB01BU6YBWU%2CB00XW2OFWW%2CB01GUDOJWA%2CB01MG3NEWF%2CB07F3TV3G4%2CB00OKCRU5M%2CB01H1R8BK0%2CB0764NQ1WW%2CB082MNSPLQ%2CB076PVHFBW)

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Note: So far this sensor has been very useful. It requires line of sight so our sensor packaging must have either a clear window or full exposure. Could be a less durable option as debris could significantly effect readings.

Enclosure: