

I will use MATLAB's robotic systems toolbox as well as the built in functionality of the framework to take IMU sensor data. First, I will create an IMU sensor system object and give it a parameter according to what it has to record. It will be a 2-line code which is:

```
IMU = imuSensor('accel-gyro')
```

```
[accelReadings, gyroReadings] = IMU (acc, angVel)
```

Then in MATLAB I will build the robot step by step to record all its joints. Then I will trace a 2D path using inverse kinematics to allow it to move.

To correct the given IMU data we will use `imufilter()` function which will apply a Kalman filter to the collected IMU data. The reference frame can also be defined as north east down or east north up.pp