

## How Do Different Angled Inclines Affect the Accuracy of an iPhone 12's Accelerometer

*Saturday, 21 January 2023 16:30 (1h 30m)*

Smartphones contain many sensors that can be used in a multitude of different contexts. Following a past experiment we conducted that confirmed an anomaly in the measurements, that we have not found in literature, a new question came to the forefront. An iPhone12 and a PASCO Scientific Accelerometer were placed onto a cart and sent down an incline to compare their measurements of acceleration. In the past experiment, we saw that the iPhone12's acceleration measurements decayed rather than staying the same for the duration. This experiment set out to find if there is a correlation between the angle of the incline and the rate that the acceleration decreases according to the iPhone. Finding this will help in the next steps of the overall goal to use a smartphone as an inertial navigation system. Further experiments will need to be done.

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**Session Classification:** Poster Session + Grad/Career Fair