

# Technical Report Proposal

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March 24, 2015

## Contents

### 1 Project Summary

The purpose of this report will be to recommend a sensor fusion technique to increase the accuracy movement detection in mobile devices. To accomplish this, three sensor fusion algorithms will be implemented on my cellular phone and data gathered on the accuracy of phone movement.

Most modern mobile devices contain a variety of sensors, including a gyroscope, accelerometer, magnetometer (compass) and camera. These sensors take measurements in discrete intervals, and changes in values between readings are not reported. This means that no single sensor can accurately convey a device's movement through space. In order to gain a better understanding of a phone's movement, sensors must be "fused" together.

TODO: expand

### 2 Tentative Outline

- Introduction
- Sensor Overview and Limitations
  - Accelerometer

- Gyroscope
  - Magnetometer
  - Camera
- Sensor Fusion
  - Complementary Filter
  - Kaulman Filter
  - TODO: find 3rd method
- Results

### **3 Outcome**

The report will recommend an algorithm for sensing phone movement using multiple sensors.

### **4 Primary Research Strategies**

asd

### **5 Secondary Research Strategies**

asdfa

### **6 Timeline**

adf

### **7 Questions and Concerns**

I'm concened