

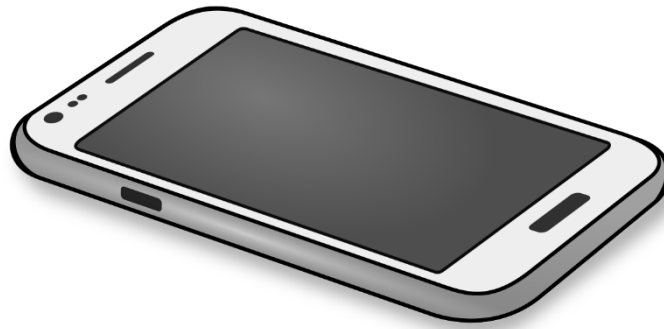
## Development of a framework for manipulation and augmentation of sensor data on Android devices.

### *Description*

Many modern smartphones contain inertial sensors for a multitude of applications including gesture recognition, camera stabilization, gaming or even VR. However, one common problem on these devices is the huge variety in the quality of the inertial sensors and the sensor fusion. This makes it hard for developers to create applications that behave well on as many devices as possible. Oftentimes it is not feasible to have access to many devices for the development. To remedy this problem, we suggest to implement a framework to alternate the sensor data coming from the device. This gives app developers the possibility to test different qualities of the smartphone sensors using just one device. Such a system has been recently been developed for other embedded systems and should now be also made available to Android smartphones.

Your task in this project is to get familiar with the development of applications on android devices, sensor fusion and the developed framework for sensor data augmentation.

Afterwards it is your task to implement the sensor data manipulation as a library for Android devices. The implementation should afterwards be tested and evaluated for its usability. Optimally different common case scenarios should be devised to improve the usability of the developed framework.



### *The following tasks have to be conducted:*

- Familiarize with the fusion method, inertial sensor data and android development
- Implement a sensor data augmentation library based on the existing framework
- Evaluate the framework and device common case scenarios

### *Prerequisites:*

- Experience with Inertial Sensors, Sensor Fusion and Android
- Programming skills preferably in Java or experience with OOP

### *Supervisor:*

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