# Sports performance tracking project

**Accelerometer**

* Sensor that enables users with an upgraded experience by adjusting an orientation of the app screen in the smartphone and tablet.
* Core objective of the mobile phone accelerometer is, the device adapts the orientation as per the device position from horizontal to vertical and vice-versa.
* Also used as a pedometer to count steps, and based on the step it enables users with the detailed analysis of how many calories burnt, how many kilometers they walked and, and more.

**Gyroscope**

* Device that is used to maintain a reference direction or provide stability in navigation, stabilizers etc. (maintain balance/orientation).
* Present in your smartphone to sense angular rotational velocity and acceleration.
* Enables the phone to sense linear orientation of the phone to auto-rotate your screen.

N/B While the gyroscope takes care of rotational orientation, the accelerometer senses the linear changes relative to the frame of reference of the device.

In the Google glass a accelerometer tracks linear movement and the gyroscope maps head movement of the scene you are looking at, in relation to your head.

Define the problem:

The problem for the sports performance tracking project is to classify the different activities performed by athletes using accelerometer and gyroscope readings from Google Glass and two smartphones placed in the front and back pockets. Specifically, the problem involves developing a machine learning model that can accurately identify the different activities, such as running, walking, jumping, or sitting, based on the sensor data collected from the devices. This problem can be framed as a supervised learning task, where the model is trained on labeled data from the training set and evaluated on the test set to measure its performance. The goal is to develop a robust and accurate model that can be used to track and analyze the sports performance of athletes in real-time, enabling coaches and trainers to provide personalized feedback and guidance to improve their performance.