Introduction to Android Gyroscope Sensor

CS 436 Software Development on Mobile

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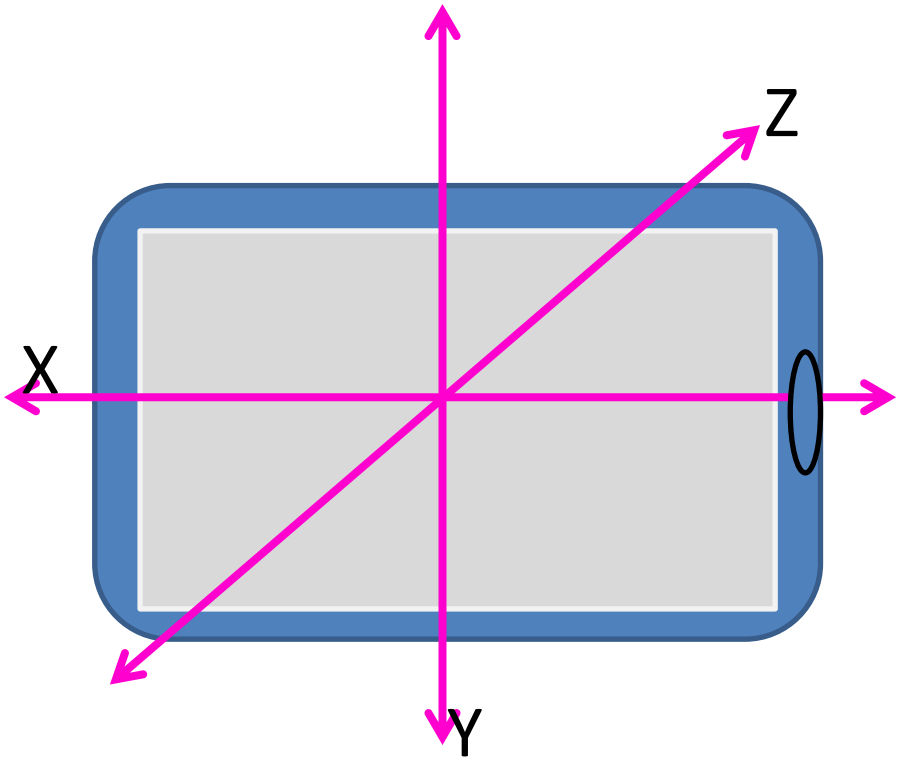
Gyroscope sensor

-Measure the orientation of a device
-Detect all rotations (pitch, Roll, Yaw)
-Return data in SI rad/s

Gyroscope sensor

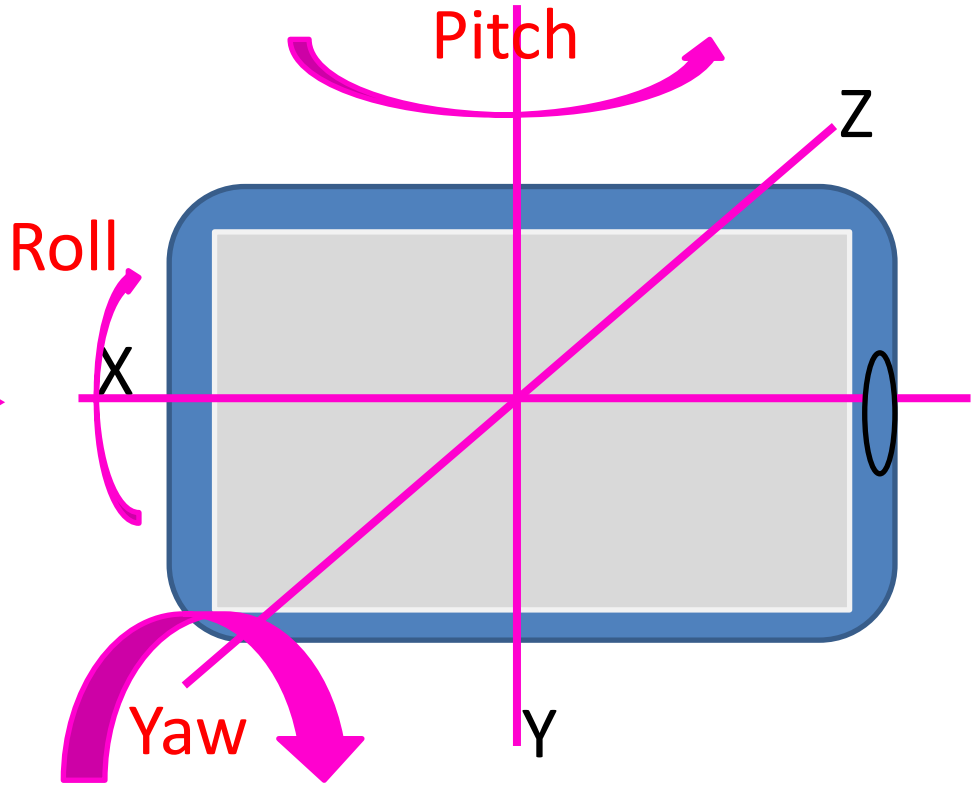
Accelerometer

-Measure only motion
-Bad for detect rotation
-Found in every device



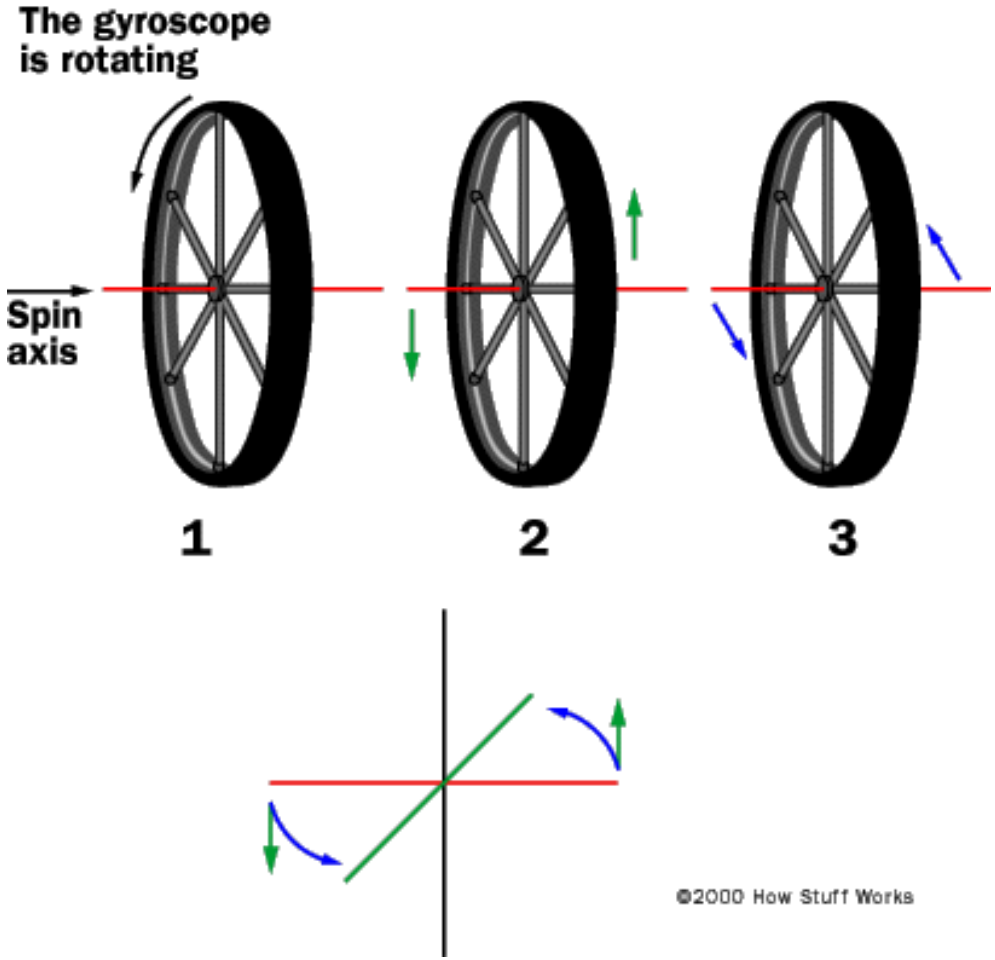
Gyroscope

-Measure only rotation
-Can not detect linear motion
-Not all device have it



Gyroscope sensor

Rotating Gyroscope

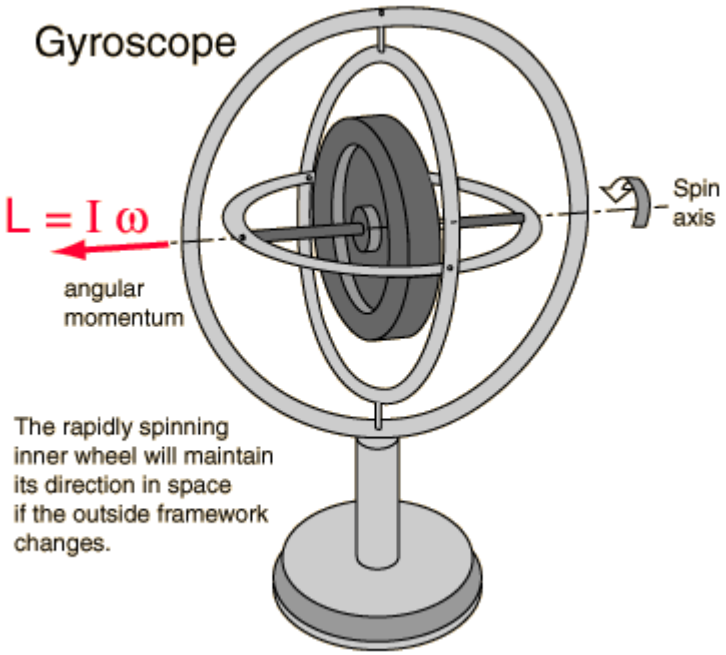


Gyroscope sensor

Rotating Gyroscope

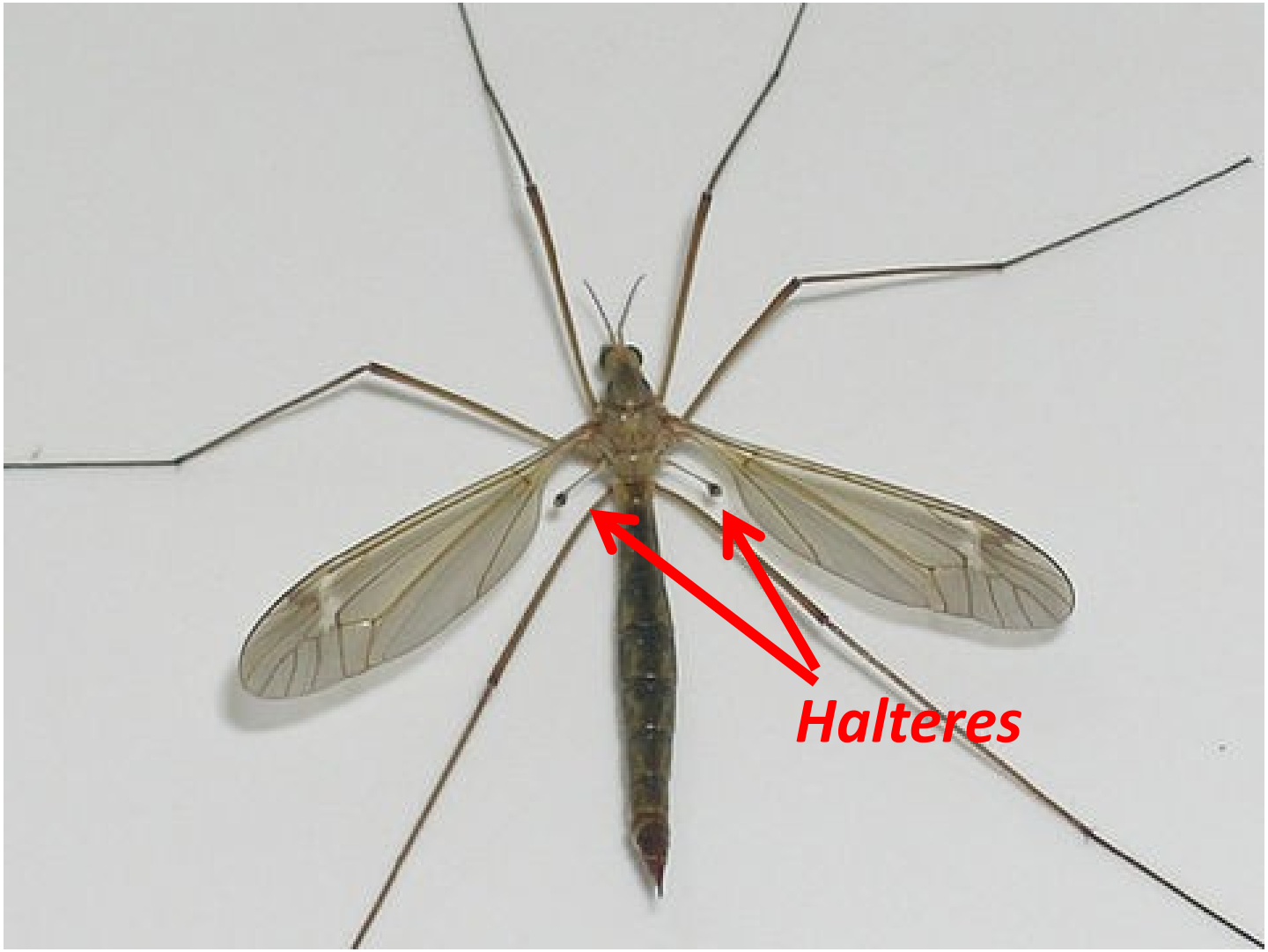
Gyroscope sensor

Rotating Gyroscope



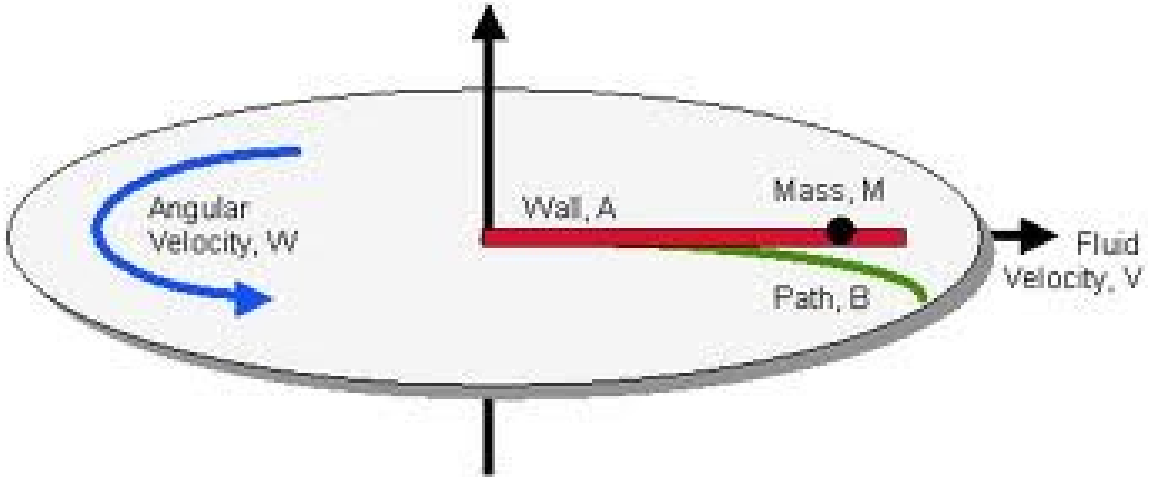
Gyroscope sensor

Vibrating Gyroscope



Gyroscope sensor

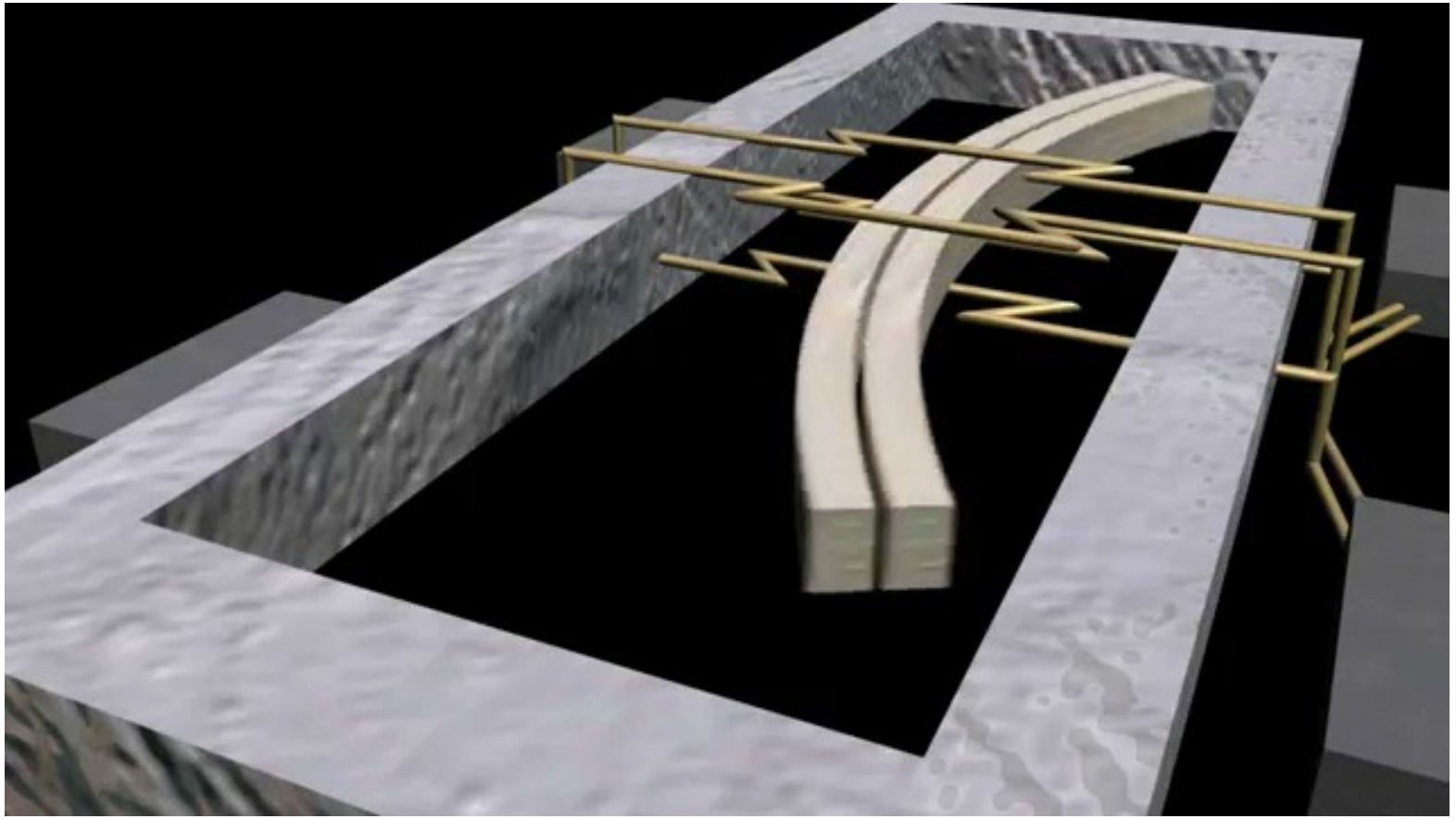
Vibrating Gyroscope



Coriolis force

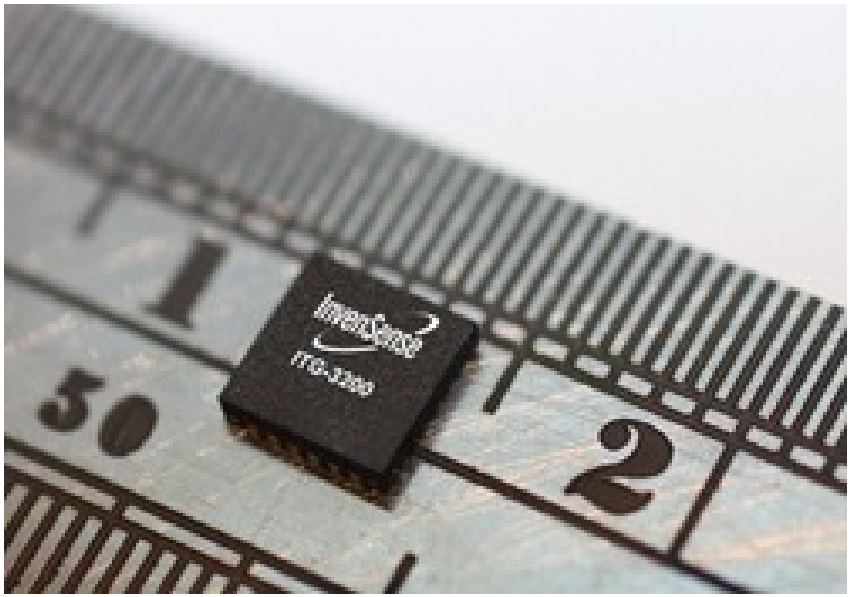
Gyroscope sensor

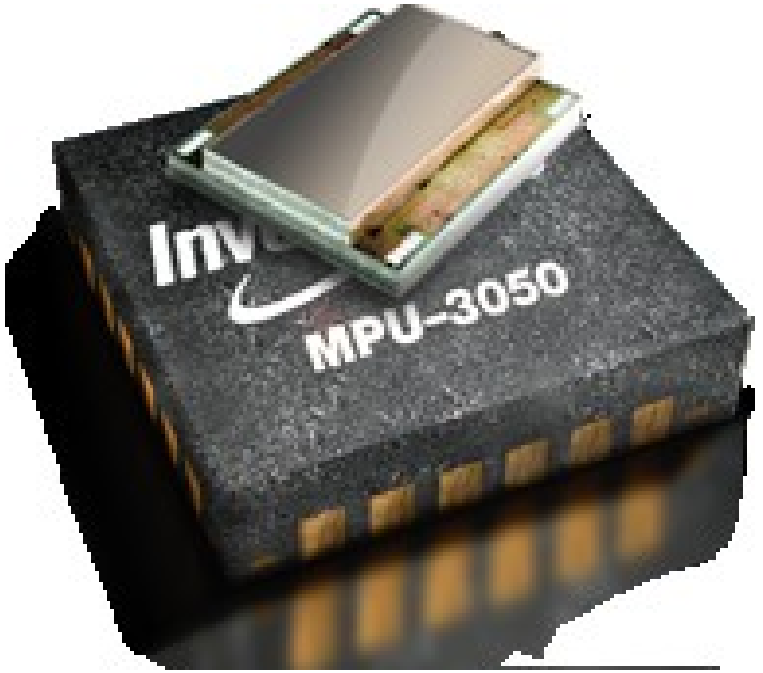
Vibrating Gyroscope



Gyroscope sensor

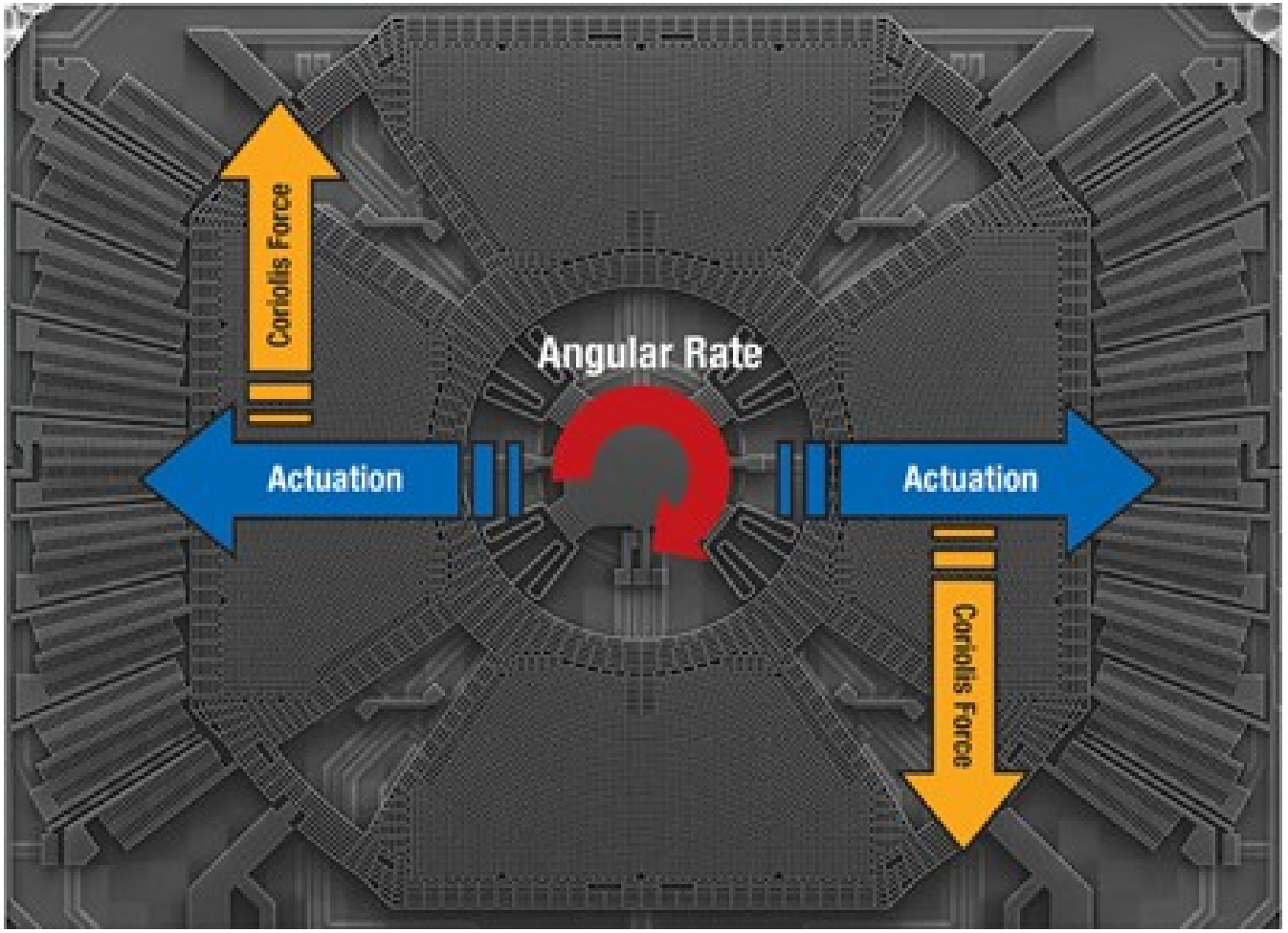
Vibrating Gyroscope





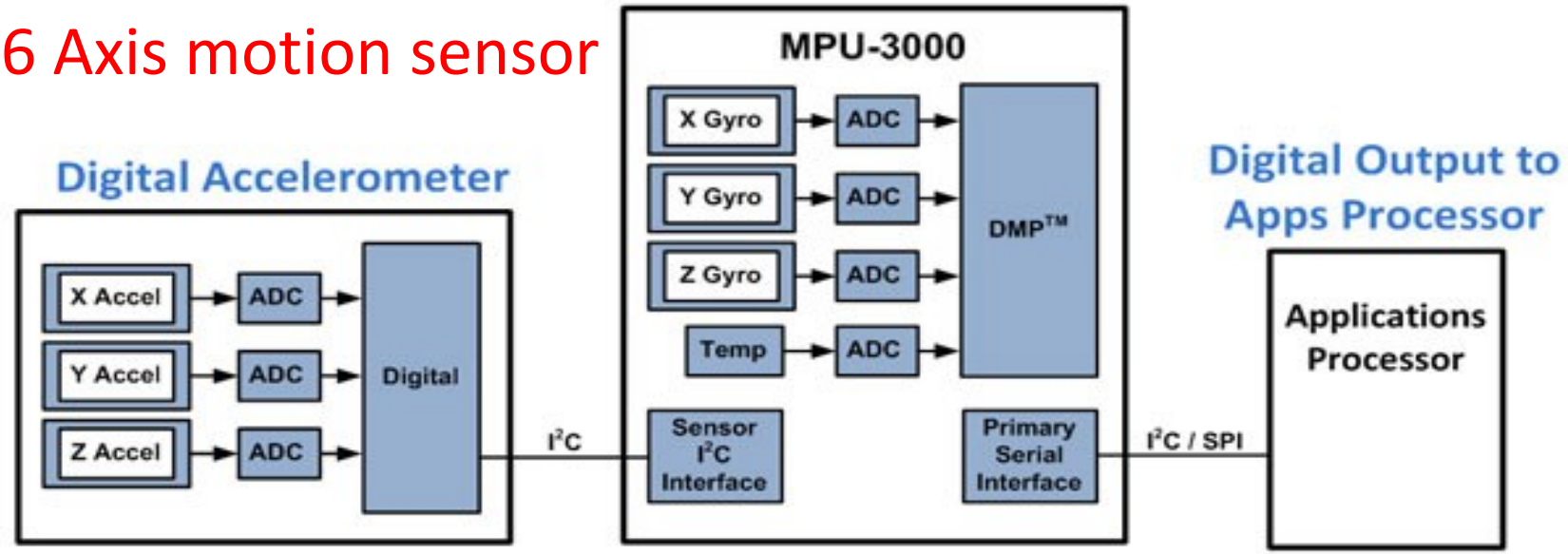
Gyroscope sensor

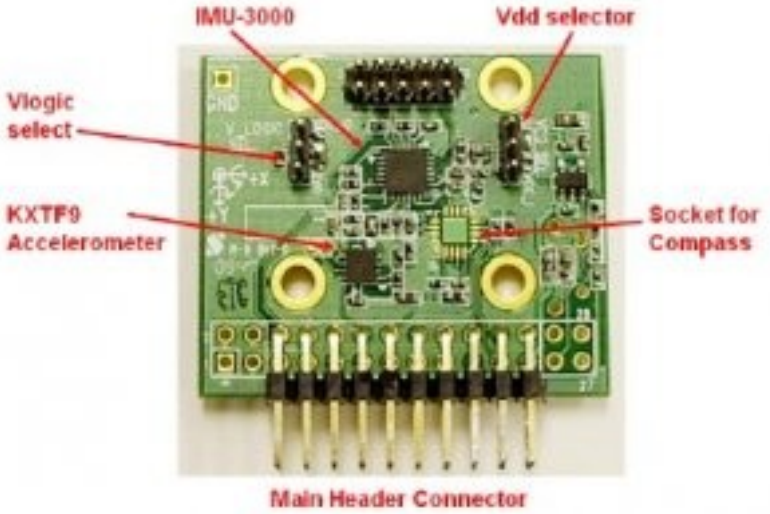
Vibrating Gyroscope



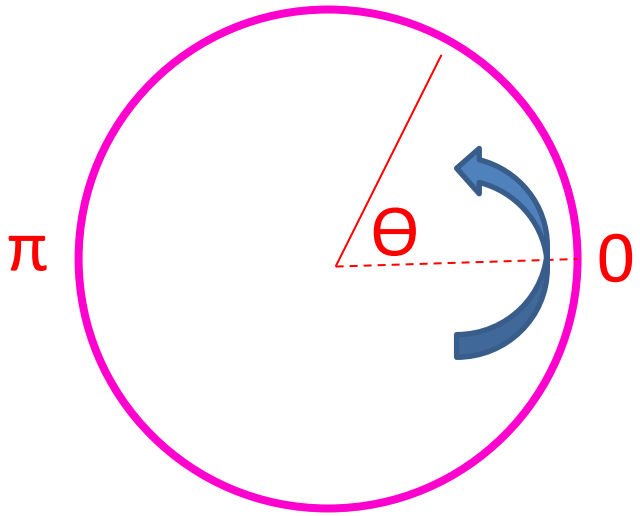
Gyroscope sensor

6 Axis motion sensor





Gyroscope sensor



Θ is rotation angle in radian

Rotational speed (angular velocity) $\omega = \Theta/t$ (rad/s)

Frequency $v = \omega /2\pi$ (Hz)

0.1047 rad/s = 1 rpm

Gyroscope sensor

```
mSensorManager = (SensorManager) getSystemService(Context.SENSOR_SERVICE);
mGyroscope = mSensorManager.getDefaultSensor(Sensor.TYPE_GYROSCOPE);
```

Thank you ☺