REPORT ON MPU6050 SENSOR

MPU stands for motion processing unit. As said it has the ability to sense motion.

Precisely, it has a 3-axis accelerometer and 3-axis gyroscope. This enables us to extract a lot of information about its orientation and motion.

This sensor also has an internal temperature sensor which can be used for optimizing the chip based on its temperature.

MPU has a total of 8 pins but only 4 are needed for its basic functioning

the four are-

VCC- voltage input pin (either 5v or 3.3v).

GND- ground pin.

SDL- I2C serial data line (this pin sends the data) (I2C stands for inter integrated circuit).

SCL- I2C serial clock line (this pin generates clock pulse for data transfer).

It's used in a lot of motion tracking-based device, devices requiring orientation data.

It uses mems (mechanical electrical measuring systems) to determine acceleration and rotation.

To use in Arduino, we need to install and add two libraries, WIRE.h and MPU6050.h

Each library has its own functions which can be used in the void setup and void loop functions.

In the context of CubeSat, the MPU6050 can provide data about the orientation of the satellite and its accelerations. This data can help the onboard computer to make decisions on it own.

There are two more pins which maybe worthy of mentioning if we need to use another sensor.

They are XDL and XCL which function same as SDL and SCL respectively but as inputs from another sensor say a magnetometer which can help in finding absolute orientation.
The last two pins are ADO (I2C address selection - useful when there is another sensor using the same address line as the MPU6050)

And

INT (Interrupt output – usually the microcontroller keeps reading the sensor, but interrupt makes it so that the microcontroller only reads when interrupt is high)