

HARDWARE COMPONENTS LIST

Data Acquisition Modules:

Temperature Sensors : TI LMT84LP , Sparkfun DS18B20 , Microchip TC74 , GY-906 MLX90614ESF Infrared Temperature Sensor

Pressure Sensors : Absolute, Gauge , Differential (Depending on application will have to be chosen , wide range available in the market)

Motion Sensors : PIR Sensor , Miniature Doppler Radar , Ultrasonic Sensor , Optical

Level(Liquid) Sensors: Optical , Ultrasonic , Microwave/Radar (All sensors listed here are mostly used for industrial purposes)

Cameras: Rpi Camera , NOIR Camera(For use in dark environments) , IMX219-160 Camera(Compatible with Jetson Nano) , ESP-32 Cam , Adafruit AMG8833 IR Thermal Camera

Proximity Sensor : Tfmini-S LiDAR , Ultrasonic Sensor , IR Proximity Sensor , Inductive Sensor PNP , Sick WT series Photoelectric Sensors(Costlier than other options listed here)

Air quality/Smoke Sensor: MQ-series sensors

Acceleration and Gyro Sensor : Adafruit MPU-6050 6-DoF Accel and Gyro Sensor , IMU 9DOF 9Axis Tracking Sensor MPU9250 gyro , WT931 500Hz AHRS IMU Sensor ,Adafruit LIS3DH Triple-Axis Accelerometer

Humidity Sensor: DHT-11 Digital Humidity Temperature Sensor , DSD Tech DHT22 AM2302 ,

Commonly Used Wireless Communication Modules :

Wifi Modules :MKR GSM (By Arduino) , ESP 32/8266- wifi modules ,HLK-M50 RDA5981 Wireless Serial WIFI,

Bluetooth Modules:DSD TECH HM-10 Bluetooth 4.0 , HC-06 Bluetooth Serial Transceiver, The above mentioned ESP- wifi modules have bluetooth capability as well

RF Modules : NRF24L01 Wireless RF Transceiver Module, HC-05 Wireless Bluetooth RF Transceiver Module

Zigbee Modules : Xbee Modules (Useful in creating small networks with multiple connected sensors without the need for wifi)

Commonly Used Microprocessors and Microcontrollers :

Raspberry Pi

ESP 32/8266

NVIDIA Jetson Nano(Expensive)

Mediatek MT3620(Developed only recently in collaboration with Microsoft)

Arduino UNO R3

AVR Atmega 328p

AVR Atmega Series MCUs

Microchip SAM Series

Microchip PIC Series

Other notable brands include Renesas and NXP but these above listed products are more widely used .