

Here's a structured breakdown of the smart environmental monitoring system components:

1. Temperature Sensor

- Function: Measures ambient temperature
- Interface: I2C or Analog
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹450.00

2. Humidity Sensor

- Function: Measures relative humidity
- Interface: I2C or Analog
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹500.00

3. Air Quality Sensor

- Function: Measures air pollutants (e.g., CO₂, NO₂)
- Interface: I2C or UART
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹1300.00

4. Light Sensor

- Function: Measures ambient light levels
- Interface: Analog
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹260.00

5. Pressure Sensor

- Function: Measures atmospheric pressure
- Interface: I2C or SPI
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹850.00

6. Microphone

- Function: Captures sound levels
- Interface: Analog or I2S
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹680.00

7. GPS Module

- Function: Provides geographic location data
- Interface: UART
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹1000.00

8. Data Logger (SD Card Module)

- Function: Stores sensor data
- Interface: SPI
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹500.00

9. Wi-Fi Module

- Function: Provides wireless connectivity
- Interface: UART or SPI
- Power Supply: 3.3V to 5V
- Estimated Cost: ₹850.00

10. Power Supply (Battery)

- Function: Provides power to the system
- Interface: N/A
- Power Supply: 3.7V Lithium-ion Battery
- Estimated Cost: ₹450.00

11. Voltage Regulator

- Function: Regulates power supply to components
- Interface: N/A
- Power Supply: 3.3V or 5V
- Estimated Cost: ₹280.00

12. Microcontroller (MCU)

- Model: STM32F407
- Function: Manages sensors, processes data, communicates with modules
- Interfaces: I2C, SPI, UART, GPIO
- Power Supply: 3.3V
- Estimated Cost: ₹1100.00

So total estimated cost this smart environmental monitoring system reaches around ₹8000 to ₹9000

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