SMART ENVIRONMENT MONITORING USING IOT

**INTRODUCTION:**

Our world is undergoing an unprecedented transformation. Cities are rapidly expanding, and technology is advancing at a breathtaking pace. Consequently, the delicate equilibrium of our environment is constantly under threat. Factors like air quality, temperature, humidity, and water quality play a critical role in shaping the quality of life for individuals and entire communities. However, the traditional methods of environmental monitoring often fall short in delivering timely, comprehensive, and precise data necessary for well-informed decision-making.

**PROBLEM STATEMENT:**

As we run to the speed of technology, we often fail to notice the small things around us that can have notable impact on our health. In this project, we aim to monitor various aspects of environment and give a summarised report on current status.

Various problem is observed in environment monitoring system today including cost, heavy power consumption, data security etc. We hope to solve these problems in this project by deploying low cost yet more reliable sensors and using alternate source of energy.

**DESIGN THINKING:**

As the domain of smart environmental monitoring is vast, it is more efficient to focus on a single area. Every healthy man is a man with healthy home. According to the United States Environmental Protection Agency (EPA), indoor air is 100 times more contaminated than outside air. Most modern populations spend 80 to 90 percent of their time indoors; therefore, indoor air has a greater direct impact on human health than outside air. Moreover, in contrast to atmospheric pollution, indoor pollutants are about 1000 times more likely to be transmitted to the lungs, causing diseases such as sick building syndrome, multiple chemical sensitivities, and dizziness.

In this project, we are focusing on improving the air quality especially in household. We plan on doing the project using:

1. microcontroller (raspberry Pi or Arduino with a Wi-Fi)
2. Temperature and Humidity Sensor: DHT22/DHT11
3. Carbon Dioxide (CO2) Sensor: Non-Dispersive Infrared (NDIR) Sensors
4. Volatile Organic Compounds (VOC) Sensor: SGP30
5. Air Quality Sensor: MQ Series Sensors, Bosch BME680
6. Carbon monoxide (CO) Sensor: NDIR CO Sensor