# Task 02

i) What Sensor is Used?

Vibration Sensor: MEMS Accelerometer (ADXL345)

Strain Sensor: BF350-3AA Electro Resistive Strain Sensor

Moisture Sensor: Resistive Moisture Sensor

(ii) What Controller is Used?

Arduino Uno: Microcontroller based on the ATmega328P.

(iii) What IDE is Used?

Arduino IDE: Used for writing and uploading code to the Arduino Uno.

Visual Studio (VB.NET): Used for data visualization and analysis on a desktop application.

(iv) What Cloud is Used?

Thing Speak: Used for storing and visualizing sensor data in real-time, and for IoT-based monitoring.

(v) Three Questions from the Reference for Further Discussion:

1. How does the system handle the variability and accuracy of sensor readings in real-time monitoring?

Discuss how fluctuations in sensor data due to environmental factors or sensor calibration issues are managed to ensure reliable monitoring.

2. What are the power management strategies used to ensure the longevity of the SHM system, especially when deployed in remote locations?

Explore the power consumption of the sensors and controllers, and how power efficiency is maintained, particularly for long-term monitoring projects.

3. How scalable is the proposed SHM system in terms of adding additional sensors or expanding monitoring to larger structures?

Analyze the system's ability to scale and accommodate more sensors or integrate with other IoT devices, considering both hardware limitations and software compatibility.