

**FACULTY OF SCIENCE**

**COMPUTING DEPARTMENT**

TO: DR. T. MANDA

FROM: BSC-29-18 (ANDRINAH KAUNDA)

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COURSE CODE: COM 422

COURSE TITLE: ICT PROJECT

ASSIGNMENT TITLE: PROJECT REQUIREMENTS

ASSIGNMENT NO: 2

DUE DATE: 22 March 2023

**IoT Based Bridge Health Monitoring & Alerting System**

**Sensors**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **no** | **Name** | **Use** | **Location** | **Quantity** | **Price** | **Signals** | **Easy with** |
| **1** | Vibration Sensor (SPST-NC) | Measuring vibrations | local | 1 | K3000 | SW-420 Vibration sensor(for raspebery pi) | Both |
| **2** | Strain Sensor (Load Cell) | Measuring strain | import | 1 | K5000 | Worked for them | Both |
| **3** | water level indicator(Songhe water level sensor) | Measuring water levels | local | 1 | K10000 | Analog signals (some are using ultrasonic sensor) | Both |
| **4** | Accelerometer (MPU-6050 IMU 3 axis ) | Detecting and monitoring position or steadiness of bridge.  Detects the moving mass and unbalances. | Import | 1 | K3000 | digital | Both |
| **5** | Crack Sensor(ultrasonic sensor) | Detecting cracks | local | 1 | K4000 |  |  |

**Microcontrollers**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **No** | **Name** | **Use** | **Location** | **Quantity** | **Price** |
| **1** | Arduino uno | Programing logic | local | 1 | K30000 |
| **2** | ESP 8266 | Programming Logic and facilitate communication with sensors. | local | 1 | K24000 |

**Other**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **no** | **Name** | **Use** | **Location** | **Quantity** | **Price** |
| **1** | servo motor | Closing the bridge. | Local | 1 | K5000 |
| **2** | Alphanumeric (ic2)LCD, 16 x 2 | Displaying information | Local | 1 | K10000 |
| **3** | Resistors | Power regulators | Local | 10 | K2500 |
| **4** | Connectors | Connection of devices | Local | 2 | K10000 |
| **5** | Breadboard | Building our circuits | Local | 1 | K5000 |
| **6** | Batteries | Power supply(5v) | Local | 1 | K5000 |

#mcp 3002 for converting from analog to digital or ads 111s