CSE 316 (Peripheral and Interfacing Lab)

*A Project of Temperature and Humidity Measurement using DHT11*

**Motivation:** Sometimes in different companies, there are many products which are temperature sensitive. So, for saving these products from unexpected damage it becomes important to measure the temperature of that room where the products are. This system will help by measuring the temperature and humidity inside the room. So that, we will be alert and able to safe those products from damaging by taking necessary precautions.

**Objective:** The goal of this project is, it will help a particular company’s products from damaging and also people will be alert by seeing the temperature and humidity value in LCD screen. Another one is to use Arduino based hardware components to solve the aforementioned issue.

**Critical Challenges:** Working with the GSM module will be the most critical challenge while having a very low level of knowledge about it.

**Conflicting Requirements:** Uncertain weather can be a conflicting requirement. So, this can be solved in future.

**Some components of Complex Engineering Problem:**

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| |  | | --- | | Knowledge Profile (K) [**K –short name]** | | K1–natural sciences | | K2 –mathematics | | K3 –engineering fundamentals | | K4 –specialist knowledge | | K5 –engineering design | | K6 –engineering practice | | K7 –comprehension | | K8 –research literature | | |  |  | | --- | --- | | **Attribute** | **P1 and some or all of P2 to P7:** | | **Depth of knowledge required** | **P1**: one or more of K3, K4, K5, K6 or K8 | | **Range of conflicting requirements** | **P2**: wide-ranging or conflicting technical, engineering and other issues | | **Depth of analysis required** | **P3**: no obvious solution | | **Familiarity of issues** | **P4**: Involve infrequently encountered issues | | **Extent of applicable codes** | **P5**: outside problems encompassed by standards and codes of practice | | **Extent of stake-holder involvement and conflicting requirements** | **P6**: diverse groups of stakeholders with widely varying needs | | **Interdependence** | **P7**: many component parts or sub-problems | |

**Let’s explore how a few P’s could be addressed through this project**

**P1** (***Depth of knowledge required- one or more of K3, K5 or K8***): This project needs the study of related works having the same goal like my project (**K8-** *research literature*), designing the project with hardware components (**K3-** *engineering fundamentals***, K5-** *engineering design*).

**P6** (***Extent of stake-holder involvement and conflicting requirements- diverse groups of stakeholders with widely varying needs***): This will be beneficial for those company which products are temperature sensitive.

**P7 (*Interdependence- many component parts or sub-problems*):**

1. Hardware (sensor- based) model.
2. GSM module (sends alert message).

**List of activities (As)**

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| **Attribute** | **Some or all of the following:** |
| **Range of resources** | **A1: use of diverse resources (include people, money, equipment, materials, information and technologies)** |
| **Level of interaction** | **A2: resolution of significant problems arising from interactions between wide-ranging or conflicting technical, engineering or other issues** |
| **Innovation** | **A3: creative use of engineering principles and research based knowledge in novel ways** |
| **Consequences for society and the environment** | **A4: consequences in a range of contexts, characterized by difficulty of prediction and mitigation** |
| **Familiarity** | **A5: Can extend beyond previous experiences by applying principles-based approaches** |

**Let’s explore how a few A’s could be addressed through this project**

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| **Attribute** | **Some or all of the following** |
| **Range of resources** | **A1 (*Range of resources*):** Project needs to engage diverse resources including people, money, information and technology. |
| **Consequences for society and the environment** | **A4 (*Consequences for the society and environment*):** Abatement of product damage due to high temperature and low humidity will be the consequence of this project towards the society. |