# Project proposal

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| --- | --- | --- | --- | --- |
| **Name of Candidates** | **A** | **B** | **C** | **D** |
| **PS Numbers** |  |  |  |  |
| **Name of Mentor – Delivery** | **Ramya** | | **PS No 995920** | |
| **Name of Mentor- GEA** | **YYYY** | | **PS No** | |
| **Project Period** | **From: November 2020 To: December 2020** | | | |
| **Date of Completion** |  | | | |

### **Project Title**

* Design of Analog & Digital Data Acquisition System using Coulter principle and implement peak detection algorithm to detect total number of peaks.

### **Project DETAILS:**

1. **aim**:

* Design of DAQ for acquiring 8 channel analog voltage using coulter principle and 8 channel digital data. System shall acquire the data at a rate of one mega sample per second and then store those data points in spatial domain. The data should be acquired for 10 seconds and then run a peak detection algorithm to detect the peaks based on specified persistence of the signal.

1. **Problem statement:**

* Consult customer and obtain detailed requirements.
* Design AFE and DFEs
* Decide mechanism for data storage and retrieval.
* Design algorithm, data format and structures for storage.
* Implement a peak detection algorithm to detect the peaks of the acquired signals.
* The algorithm should be capable of detect the diplets, triplets from the acquired data points.

1. **Objectives & Learning outcomes of the project**

* AFE and associated technical challenges for data acquisition.
* Coulter principle and it’s usage in medical domain
* Knowledge on how to handle lower amplitude signals
* Safety and design for EMI-EMC
* Design of data structures for storing and transmitting data
* Implementing complex algorithms for signal processing.

1. **Key Deliverables:**

* Requirements specifications
* Detailed design calculations and schematics
* Firmware design document, calculations, state diagrams, flow diagrams and code in C/C++.

1. **Hardware & Software Recommendations**

* HW - 2
* FW – 2

1. **Weekly Progress (gantt chart)**



### **REVIEW**

* Weekly reviews to be conducted over the entire tenure of Project
* Each review comprises of a progress presentation from the candidates
* Mentor may demand daily / Weekly deliverables
* behavioral Traits would be evaluated along with project deliverables

### **Final Review and Recommendation:**

* Rating and Score against each parameter

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| --- | --- | --- | --- | --- |
| **Sr.No** | **Parameter** | **Rating** | | **Score/5** |
| **1** | **Approach towards the problem** |  | |  |
| **2** | **Analytical Ability and Results discussion** |  | |  |
| **3** | **Independent Work +Team Work** |  | |  |
| **4** | **Presentation Skills** |  | |  |
| **5** | **Project Deliverables** |  | |  |
| **6** | **Quality of Project Thesis** |  | |  |
| **7** | **Communication Skills** |  | |  |
| **8** | **Attitude** |  | |  |
| **9** | **Confidence** |  | |  |
| **10** | **Innovation** |  | |  |
|  | **Total** |  | | **/50** |
|  |  |  |  | |

A= Exceeds Expectations B= Meets Expectations C=Does not meet expectations

**Recommendation:**

**Progression: Yes No**