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**Design & Innovation Project (DIP)**

**Project Report**

**<<Title>>**

**Project Group: <<XXX>>**

**School of Electrical and Electronic Engineering**

**Academic Year 20xx/xx**

**Semester 1/2**

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1. **Purpose/ Project Objectives**

This section provides an overview and the objectives of the project. This can be taken from the project charter. The project objective, is usually written based on the SMART principles.

* Specific
* Measurable
* Achievable
* Relevant
* Time-bound

1. **Project Summary**

This chapter describes the problem that was solved by the project. Did the project achieve its goals: was the problem solved completely, or were there some issues that will remain unsolved?

The objective of this project is to develop a smart environmental monitoring system. This is achieved through monitoring the dust and noise levels in real time and using machine learning to analyze and predict hazardous environment conditions. The core of this system consists of an ESP8266 microcontroller, a range of sensors for detecting particulate matter (PM) and decibels (dB) levels and IoT platforms, ThingSpeak, for data storage, visualization and predictive analysis through MATLAB.

1. **Scope**

This section summarizes the final total scope of the project.

* Project Deliverables. This section gives an overall description of all the project outputs.
* Summary of the work/activities that were performed to produce those outputs.
* Changes. Were there any changes to the original scope? Highlight the changes / change requests,

**4. Schedule**

|  |  |  |
| --- | --- | --- |
| PHASE | Planned Milestone Date | Actual Milestone Date |
| Initiating Phase |  |  |
| Planning Phase |  |  |
| Execution Phase |  |  |
| Closing Phase |  |  |
| Project End Date |  |  |

<Explain differences in between the planned and actual schedules>

<Description of Benefits>

**5. Cost**

|  |  |  |
| --- | --- | --- |
| PHASE | Planned Costs | Actual Costs |
| Initiating Phase |  |  |
| Planning Phase |  |  |
| Execution Phase |  |  |
| Closing Phase |  |  |
| Project Total Costs |  |  |

<Explain differences between the planned and actual costs>

**6. Outcomes / Benefits**

* Outcomes
* Benefits

**7. Project Management Review**

This section should cover the following points

* Project initiation

*Review if the initial objectives are specific, measurable, achievable, relevant, and time bound.*

* Project planning

*Is the project properly scheduled? Are the roles and responsibilities clearly defined?*

* Project manager role

*Review communication and motivation strategies and their impacts on project progress and outcome. Elaborate on monitoring and control activities necessary to ensure health progress, and how changes and challenges are managed if any.*

* Cost management
* Risk management

**8. Reflection**

This section should cover the following points

* Engineering knowledge
* Problem Analysis
* Design/development of Solutions
* Individual and Team Work
* Future Recommendations.

**9. Acknowledging/Declaring the Use of GAI**

Please refer to NTU's Current Policy & Guidelines on the Use of Generative AI available in NTUlearn home page and the link:

<https://entuedu.sharepoint.com/sites/Student/dept/ctlp/SitePages/Exploring-the-Impact-of-Generative-Artificial-Intelligence-(GAI)-Tools-on-Education.aspx>

* Complete the following declaration if applicable.
* Create a Paper Trail to document the input prompt, output obtained, and how you have used it

I \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (student name), \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_@e.ntu.edu.sg (NTU email) honestly and sincerely make the following declaration in relation to the following course submission:

1. Name of course:

2. Course Code:

3. Instructor:

4. Title of Assignment/Project Submission:

In relation to the foregoing I hereby declare that, fully and properly in accordance with the Assignment/Project Instructions I have (check where appropriate):

i. Used GAI as permitted to assist in generating key ideas only. ☐

ii. Used GAI as permitted to assist in generating a first text only. ☐

And/or

iii. Used GAI to refine syntax and grammar for correct language submission only. ☐

Or

iv. As it is not permitted: Not used GAI assistance in any way in the development or generation of this assignment or project. ☐

I also declare that I have :

a. Fully and honestly submitted the digital paper trail required under the assignment/project instructions; and that

b. Wherever GAI assistance has been employed in the submission in word or paraphrase or inclusion of a significant idea or fact suggested by the GAI assistant, I have acknowledged this by a footnote; and that,

c. Apart from the foregoing notices, the submission is wholly my own work.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student Name & Signature Date

**References**

[1]

[2]

**Appendix A -** Project Members Information

|  |  |  |  |
| --- | --- | --- | --- |
|  | Name | Project contributions | Report Contribution |
| 1 |  | e.g., Group Leader, | e.g. Pages 3-6, 24-25, Chapter 2, Appendix A, B, .. |
| 2 |  | Treasurer |  |
| 3 |  | e.g. project video, final packaging, business proposal, group report editor, final project integration, final presentation presenter, secured industry sponsorship, |  |
| 4 |  |  |  |
| 5 |  |  |  |
| 6 |  |  |  |
| 7 |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

**Sub-Group Members List**

**Appendix B – (no page limit for appendices)**