

Acres Design Competition

Project Title

Team member name

Team member name

Team member name

Team member name

Date submitted

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* The table of contents should be automatically generated by selecting "References/ Table of Contents". Remember that the table of contents should not have an entry of the "Table of Contents" itself.
* Proof read the text for typing and grammar mistakes.
* Follow the IEEE Bibliography style for the references by selecting "References/ Citations & Bibliography/ Style".

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# Introduction

* Give a brief description of the design and a summary of the relevant background information related to the topic. Give a rationale about what is needed and why.
* Give the reader an overview of what is in the next sections.
* Do not put any detailed results of your work here.

# Design Problem

This section has the following two subsections:

## Problem Definition

Write a problem statement of the project.

## Design Requirements

This section has the following three subsections:

### Functions

* Provide functions of the design project. Remember that the functions contain verbs.

### Objectives

* Provide objectives of the design project. Remember that the objectives are specified as adjectives.

### Constraints

* Provide constraints here. Remember that the constraints are binary (either satisfied or not).

# Solution

In this section, you will provide an account of some solutions your team brainstormed to implement the project. Some solutions might not have all the desired features, some might not satisfy the constraints, or both. These solutions come up in your mind while you brainstorm ways of implementing all the features while meeting the constraints. Towards, the end you select a solution that you think has all the features and satisfies all the constraints. Remember that an engineering design is iterative in nature!

## Solution 1

Write a brief description of your first solution and provide the reasons for not selecting this one.

## Solution 2

This is an improved solution but might not be the final solution that you select. Give a brief description of this solution here.

## Final Solution

This is the final solution. Explain why it is better than other solutions. You may use a table for comparison purposes. After providing the reason for selecting this solution, detail it below.

### Components

What components (sensors and actuators) you interfaced with the microcontroller. What is the main purpose of using individual sensors (such as, ultrasonic sensor) and actuators (such as, motor). Provide a block diagram (with a numbered caption, such as Fig. 1) showing all the sensors and actuators connected with the microcontroller. Provide relevant details about individual sensors and actuators and do not forget to mention the source in the IEEE Reference style.

### Features

Give an account of all the features your prototype has. Which sensors or methods will be used for enabling those features. These features may be tabulated (with a title) for improved comprehension.

### Environmental, Societal, Safety, and Economic Considerations

Explain how your engineering design took into account environmental, societal and economic considerations. It may include how your design has positive contributions to the environment and society. What type of economic decisions you made. How did you make sure that the design is safe to use etc.

### Limitations

Every product has some limitations, and so is the case with your design product. Highlight some of the limitations of your prototype here.

# Team Work

Since this is a group project, you must have a fair distribution of tasks among yourselves. To this end, you must hold meetings to discuss the distribution of tasks and to keep a track of the project progress.

## Meeting 1

Time: September 22, 2020, 10:00 am to 11:00 am

Agenda: Distribution of Project Tasks

|  |  |  |  |
| --- | --- | --- | --- |
| **Team Member** | **Previous Task** | **Completion State** | **Next Task** |
| **Team member 1** | N/A | N/A | Task 1 |
| **Team member 2** | N/A | N/A | Task 2 |
| **Team member 3** | N/A | N/A | Task 3 |
| **Team member 4** | N/A | N/A | Task 4 |

## Meeting 2

Time: September 29, 2020, 10:00 am to 11:00 am

Agenda: Review of Individual Progress

|  |  |  |  |
| --- | --- | --- | --- |
| **Team Member** | **Previous Task** | **Completion State** | **Next Task** |
| **Team member 1** | Task 1 | 80% | Task 1, Task 5 |
| **Team member 2** | Task 2 | 50% | Task 2 |
| **Team member 3** | Task 3 | 100% | Task 6 |
| **Team member 4** | Task 4 | 75% | Task 4, Task 7 |

## Meeting 3

Provide a similar description here.

## Meeting 4

Provide a similar description here.

# Project Management

Provide a Gantt chart showing the progress of your work here. Mention all the tasks along with their predecessors. Provide the slack time of each task and identify the critical path.

# Conclusion and Future Work

* A summary of what you achieved. Mention all the design functions and objectives that you achieved while satisfying the constrains?
* While keeping the limitations of your prototype, provide recommendations for future design improvements.

# References

* Use the IEEE reference style.
* Do not put any reference if it is not cited in the text.

# Appendix

If you want to provide an additional information, use this appendix.