

# ENGR 1: Team project 1

You just graduated from school with a bachelor's degree in CpE or EEE and you obtained a job with an excellent company. For your first project, your manager gives you full freedom (which comes with full responsibility) to work on a project of your choice. Your project has to satisfy a set of conditions as follows:

1. The company wants to make money: you need to make a product that is profitable. In other words, you must address a realistic problem and there must be a need for your product.
2. Your product has to be different from what is available in the market. Because a 100% new product is difficult, your product does not have to be completely new. However, it has to have an innovative component that makes it different from existing products.
3. Your product should be completed in 3-6 months by a team of four engineers.

In this assignment, you need to find, define, and discuss the project you want to work on, and propose a solution.

While you are encouraged to think about software applications, apps should not be the only component of your project. In other words, your project should include both software and hardware.

Your team members have been randomly chosen by the instructor; you should contact your teammates as soon as possible. Talk to the instructor if you don't have the contact information of your teammates. Contribution of each team member should be around 25%.

The first page of the report is reserved for a short description of your work breakdown structure. The team should designate a team leader and possibly an editor. The paper should include a list of references. The following organization is suggested:

**Abstract:** A brief summary of your article to help the reader quickly ascertain the paper's purpose. The abstract is typically one paragraph.

**Introduction:** Justify and inform the reader about the rationale behind the work, the system you are designing and the problem you are trying to solve.

**Problem statement:** Discuss the need and the problem you are addressing. Use statistics from published articles and government agencies to make your point. You may include tables and graphs. The problem statement section could be combined with the introduction.

**Main body:** Include discussions in more details about the solution you are suggesting and the product you are developing. What is the innovation in your project? the major features or components of the product, how is it different from others? etc. It is very important to include illustrations, charts and block diagrams.

**Conclusion:** The take home message. The conclusion is typically one paragraph.

**Reference:** Cite articles and websites you used as reference. You must refer to these in the paper.

Hint: Google patent search is a very important source for patented products. You can start from an existing patent and be creative. An example of project is provided below.

**Example: A smart system for early wild fire detection**

- **The product you are developing:** A smart system for early wild fire detection
- **The need justification:** Just in the state of California, there were more than 5,600 wild fires in 2014. Together, they burned at least 631,434 acres. In addition to the very negative effects on the environment, the total cost in US dollars was more than \$184 million. Designing a system for early fire detection will help improve the fire department response and therefore save lives and money, and protect the environment.
- **What is the innovation in your project?** Such product does not exist in the market or has not been deployed yet.
- **The major features or components of the product:** For example, the sensors being used, wireless communication, type of information transmitted and how it is transmitted, notification app with maps, etc.

**Some guidelines:**

- The report should have a title, the authors' names and the submission date
- Use Times New Roman 11pt or similar font
- Use 1.5 spacing
- Use 1 inch margins (top, bottom, left and right)
- Word count: about 3000 words **not including references and WBS.**
- Do not plagiarize, work with your teammates.

**Grading rubric:**

Your report will be graded based on the following criteria

- Formatting,
- Organization,
- Content,
- Grammar, spelling, punctuation,
- Use of figures, graphs and tables,
- Conclusion,
- References.

**Note that**

- Plagiarism will not be tolerated.
- Include references at the end of the paper. Websites are not enough; you need to use books and peer reviewed articles published in engineering journals (online journals are OK)
- Online submission on Canvas is required. No paper submission. 1 submission per team.