

Final Project Proposal

Year: 2017 **Semester:** Spring
Creation Date: October 23, 2016

Project Name: "Beer Me"
Last Modified: October 31, 2016

Team Members (#1 is Team Leader):

Member 1: *Mitch Bouma*

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Member 2: *Dan Suci*

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Member 3: *Alex Dunker*

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Member 4: *Nadav Zinger*

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1.0 Description of Problem:

Everyone owns a fridge, and everyone has to get up and walk to the fridge to grab their refreshing beverages. We would like to eliminate that step and build a product that delivers that drink to you, right where you are. We're attempting to solve a problem that exists for those who enjoy the refreshing taste of beer but don't have the motivation to walk to the fridge to get it. This is more of a social problem, but the benefits are still evident. Beer is a widely enjoyed beverage, so the audience for such a product is quite large. The application of our mini fridge extends beyond beer lovers to anyone who would enjoy a cold beverage without having to get up and walk to the fridge. As well as following into a line of "smart products" which take traditional devices and appliances and add new technology based features.

2.0 Roles and Responsibilities:

Dan James Suci - *Chief Systems Integration Officer*

Dan's expertise lies in his team leadership and systems engineering experience. Dan chose to lead the system integration as he has experience in all facets of the project including hardware design, software design, microcontrollers, and mechanical systems. The tallest and whitest of the four, there is a bright future for this scrappy young officer.

Nadav Zinger - *Chief Mechanical Officer*

Nadav is a talented young officer. The shortest of the four, he has expertise in multiple programming languages, circuit building, and embedded software. These expertise have come from Internship experience as well as Purdue curriculum such as ECE 362, 368, 208, and much more.

Alex Dunker - *Chief Design Officer*

Alex's expertise includes completing printed circuit boards which he did both for his ECE 362 team and on the job with his internship with PepsiCo. He is also well versed with working with a variety of microcontrollers and boards to help complete the project. His expertise will be used to

deliver power and controls to the various parts of the project, and controlling collaborative tools such as Slack and GitHub.

Mitch Bouma - Chief Kinect and Software Operations Officer

Mitch has expertise in multiple programming languages ranging from C to Python to Machine Code. Some of his previous roles include heading the wireless data transfer of his ECE 362 project, numerous cryptography algorithms in ECE 404, and compression software in ECE 368. In addition, he worked as a software engineer this summer, utilizing technologies such as Amazon Web Services, Docker, and Python.

2.1 Homework Assignment Responsibilities

<i>Design Component Homework</i>		<i>Professional Component Homework</i>	
3-Software Overview	MB	9-Legal Analysis	AD
5-Electrical Overview	AD	10-Reliability and Safety Analysis	MB
7-Mechanical Overview	DS	11-Ethical/Environmental Analysis	NZ
8-Software Formalization	NZ	12-User Manual	DS

3.0 Estimated Budget

In this section, develop a first-cut estimation of the budget of your project, separated into categories. For each category, include a description of the category as well as a conservative estimated cost. Include a total estimated cost at the end of the estimated budget. See the example Final Project Proposal for more details.

4.0 Project Specific Success Criteria

ECE477 requires teams to develop a set of 5 project-specific success criteria (PSSCs). Overall success or failure of the senior design final project shall be largely based on the extent to which these criteria are satisfied. Develop 5 PSSCs to gauge the success of your ECE477 senior design project. Please note that there are specific course policies that must be observed when selecting project specific success criteria. More information on these course policies can be found in the "PSSC Policy" document, available on the ECE477 course website.

1. An ability for the microcontroller to rotate the launching mechanism according to the field of view of the Kinect.
2. An ability for the microcontroller to rotate the launching mechanism to a specific location specified by the kinect.
3. An ability for the microcontroller to regulate the pressure of the launcher.
4. An ability to load multiple drinking cans.
5. An ability for the kinect to recognize a specific gesture
6. An ability to detect when there is no beer in the fridge/fridge needs to be loaded.

7. An ability for the microcontroller to move a can from the loading chamber into the launcher.

5.0 Sources Cited:

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