Project Goals Document

Trash Talking

McMaster Engineering Capstone Project
Group 10

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Revision Table

Date	Author	Description
29/09/2020	Ian Currie	Document structure created.
29/09/2020	Ian Currie	Initial section descriptions and content.
30/09/2020	Ian Currie	Updated to reflect rubric.
03/10/2020	All Members	Final edits and review.

1 Introduction

The world produces 3.5 million tons of garbage every day [1]. In order to lessen our effect on the environment, individuals are going to have to limit their waste produced each year. Our team wants to help consumers do that.

By creating a device that will allow users to easily measure, track, and compare their waste production over time, we can help consumers to be more sustainable, and to lower their environmental footprint. Our solution must be inexpensive, simple to use, and it must help people limit their trash production.

2 Project Description

In order to help users to track their waste production over time, we wish to create a project with two components.

First we hope to be able to help users to measure their garbage production. This will involve some kind of a measurement device that will be able to automatically measure garbage thrown out, and upload it to a central data store. The most important measurement we hope to make is the weight of garbage thrown out, however other measurements and information may be collected. The physical component for keeping track of user's waste should be cheap enough for the average consumer to easily justify purchasing, and should ideally aesthetically fit within a modern kitchen.

Secondly, we hope to help users to measure and compare their garbage production through gamification. Users should be able to easily use their smartphone to view their most recent waste production information, compare how that to previous months, and potentially to then compare and share their waste production with their friends to help motivate users to decrease their waste production.

All in all, our project hopes to assist environmentally conscious users to limit their waste production by tracking and showing them how much they produce on a regular basis.

3 Primary Goals

As the core goals of the project, these are considered mandatory to the success of the project. Each should be evaluated with each iteration to ensure they are completed by the project's completion.

PG1 - Waste Measurement

Our first goal will be to be able to measure the waste a user throws out in a specific garbage bin. We should develop a system that requires little or no user input to measure the amount of trash thrown out by the user. This goal also involves having the capability to send the information of how much garbage is thrown out to be used in other goals.

PG2 - Waste Tracking

Our second goal involves maintaining a central database of the amount of garbage thrown out by users in a location accessible by other aspects of the project.

PG3 - Waste Display

Our third goal involves the development of a UI which can display the information stored in PG2 in a way that they can interact with their garbage in a simple way.

PG4 - Waste Sharing

Our fourth project goal allows users to compare their garbage production with their friends and neighbours. This feature will be designed as a way to encourage users to produce less and less waste with time.

4 Stretch Goals

As stretch goals, these may be pursued should all of the project goals be projected to be completed to the satisfaction of the group members. They are not mandatory to the success of the project, but would be beneficial additions if they are considered feasible.

SG1 - Goal Setting

Our first stretch goal involves users being able to define and track sustainability goals. Involved with SG1 is the ability for users to track their progress towards completing their goals, be recommended potential goals to work on, be notified when they successfully complete their goal, and be shareable with friends and neighbours.

SG2 - Waste Recognition

Our second stretch goal involves adding the capability of our system to recognize the type of garbage being thrown out. This will be an addition to PG1, and will allow users to classify what they are throwing out between a variety of categories, such as organic matter, plastics, metals, etc. This information should then be stored in the system created in PG2 and displayed with the system created in PG3.

SG3 - Waste Modularity

Our third stretch goal involves adjusting the product to work with a variety of waste categories thrown out by the user. (Eg. Compost, Recycling, etc.)

5 Project Scope

With minimal time and resources, the scope of this project remains at producing a minimal viable product. The end result should be simple, and does not need to include completed functionality with all flex goals completed. Nevertheless, all of the project goals must be fully completed, tested, and polished. The end result should be a product that could be shipped to early adopters in customer segment.

If the project team decides to continue their work, updated versions may be developed for a more complete product for shipping.

Role	Description	Team Member(s)
Documentation Lead	Ensures mapping of requirements and specifications, and ensures proper documentation of code.	Ian Currie
Project Integration Lead	Ensures integration of individual components into the entire project.	Illya Pilipenko & Hareem Arif
Hardware Lead	Responsible for working with the physical components of the project and ensuring adequate hardware interaction with software components.	Daniel Su
Backend Lead	Ensures proper data manipulation, storage, and testing framework.	Natasha Varghese
Frontend Lead	Ensures accessible and intuitive UI and UX.	Alexie McDonald

Table 1: Project role allocations.

6 Goal Responsibilities

While the structure is not definite, the roles allocated in Table 1 are to help the project contributors to know their roles and responsibilities throughout the completion of the project. Each team member will work on a variety of code bases, but the following leads are responsible for tracking the progress of their respective area.

References

[1] Kadir van Lohuizen. *Drowning in Garbage*. The Washington Post. `https://www.washingtonpost.com/graphics/2017/world/global-waste/`