



**SAIRA**

**PREPARED FOR**

Dr. Wesley Schultz

Keep America Beautiful

**PREPARED BY SAIRA**

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## **i. Cover Letter**

To: Dr. Wesley Schultz, Advisor to Keep America Beautiful

CC: Dr. Shaun-inn Wu, Director of Projects

As we reached this last phase, we had worked on improving the user interface and created a database that would be accessible to users. To allow for more user freedom, we restored functionality to the code allowing users to enter a custom number of points to pull. We also implemented a sample size calculator as well as a price calculator that would allow the user to make more informed decisions on the number of images they will pull. When the results are processed by the machine learning algorithm, users can go to the database page where they can view the calculated KAB score as well as the other relevant data such as the search date and locational data.

Working on this project was a learning experience in every single aspect. We here at the SAIRA team are thankful for the opportunity to have worked for such an important and ambitious project, and are proud of our results. However, there is always room for improvement, as in our limited time-frame there were certainly roadblocks preventing us from implementing every feature we would have wanted to include. One such improvement is the inclusion of data visualization. While we are able to save previous searches in our database, we would also want to graphically display or send the results to the user the moment the results have been processed.

The time and cost of the final phase split between the five members of the SAIRA team has totaled 78 hours at a rate of \$25.00 an hour, yielding a total amount of \$1,950. The final total accumulated cost of the project is \$15,885.00

Best Regards,

Ray Thomas Cruz



A copy of this report will be submitted to both Dr. Schultz and Dr. Wu

By signing below, you hereby approve Team SAIRA to continue working on the following project: Keep America Beautiful: Litter Detective and agree to the aforementioned estimated costs.

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*Dr. Wesley Schultz, Advisor to Keep America Beautiful*

# 1. Application Development

## 1.1 Statement of Business Context

Keep America Beautiful is a nonprofit organization with the mission to improve and clean the environment so we can have a beautiful and green country. One major goal to achieve this mission is to end littering. Littering is a major environmental issue that destroys the environment by polluting areas. There have been many ways that Keep America Beautiful have expressed their efforts to help end littering. They've done this through events and programs like Great American Cleanup and America Recycles Day.

## 1.2 Statement of Customer's Business Problems

- Keep America Beautiful needs a web based application with a user interface that detects litter in an area.
- Must be able to select geo-coordinates based on user-defined regions.
- Make litter scores accessible within the user-interface from the Machine Learning algorithm.
- Make images and data accessible to the Machine Learning Algorithm

## 1.3 Statement of Project Proposal

- Create a fully functional user interface that gives the user the ability to select geo-coordinates for a defined region.
- The ability to pull images and data from Google Streets.
- Record data of location and date of images pulled.
- Make a UI that works with the ML team algorithm.
- Display a data visualization of scored litter.
- Make it accessible on google cloud.

## 1.4 Measures of Success

- JAD 1 - Define the requirements of the project.
- JAD 2 - Make any final adjustments or changes to the requirements.
- Prototype 1 - UI development, gives the user the ability to search for a geo-region.
- Prototype 2 -Implement Data Visualization
- Final Phase - Have a fully functional and complete UI that works with the ML teams algorithm.

## 1.5 Deliverables

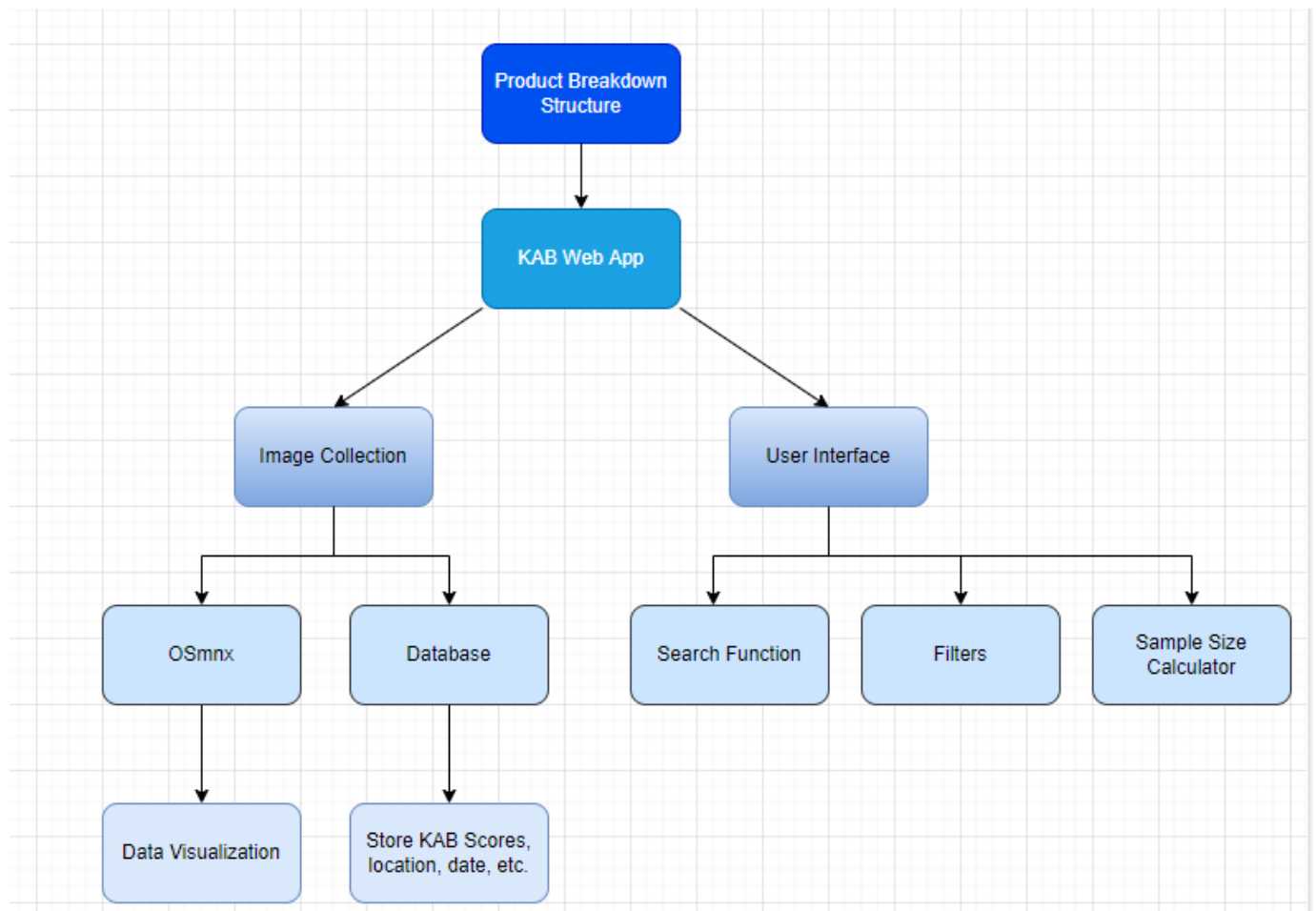
- List of any necessary links of materials used by the project.
- User guide
- Functional UI that takes user input and displays scored litter of location searched with the ability to filter number of pictures, cost, or confidence level.
- The ability to store KAB score, location, date, etc. of images pulled.

## 2. Requirements Matrix

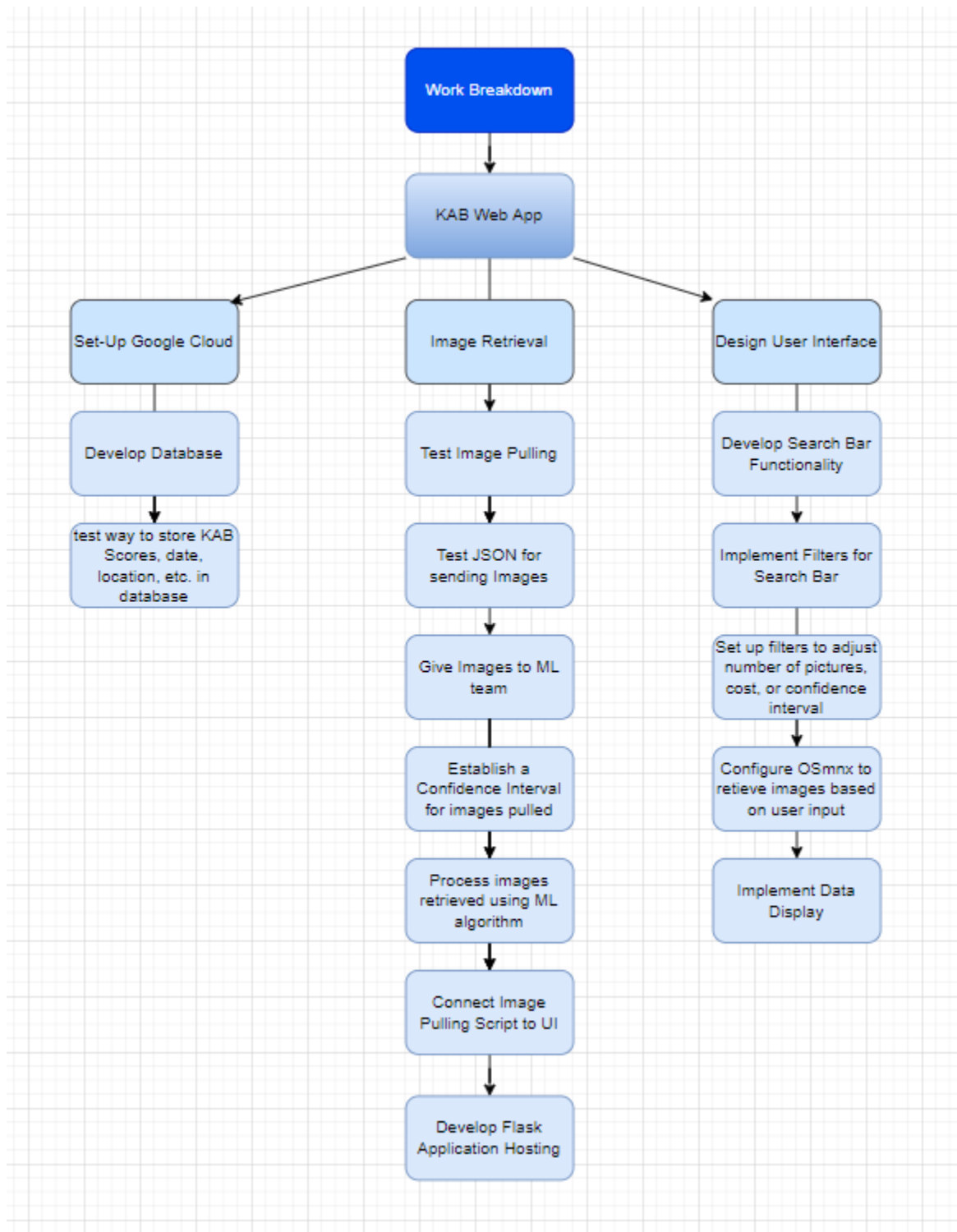
Req. #	Requirement	Description	Implemented [Y/N]	Task
1	Image pulling	-Implement OSMnx to draw streets of selected Cities	Y	3.1.3
2	Image Storage/Database	-Decide where to store images pulled with OSMnx -Integrate with ML team -Database storing KAB score, location, date, etc. to be retrieved before applying the ML to obtain a new score.	Y	3.1., 5.2
3	User Interface	-Design User Interface -Implement Filters -Retrieve Information from ML algorithm -Search Function -Allow users to adjust the number of pictures, the cost, or confidence level before applying OsMnx	Y	3.2.1,3.2.2, 3.2.3
4	Visual Representation	-Data visualization of the scored litter based on the average amount of litter and will be coordinated by color	Y	5.1.2

### 3. Project Management

#### 3.1 Product Breakdown Structure



### 3.2 Work Breakdown Structure





### 3.3 List of Tasks

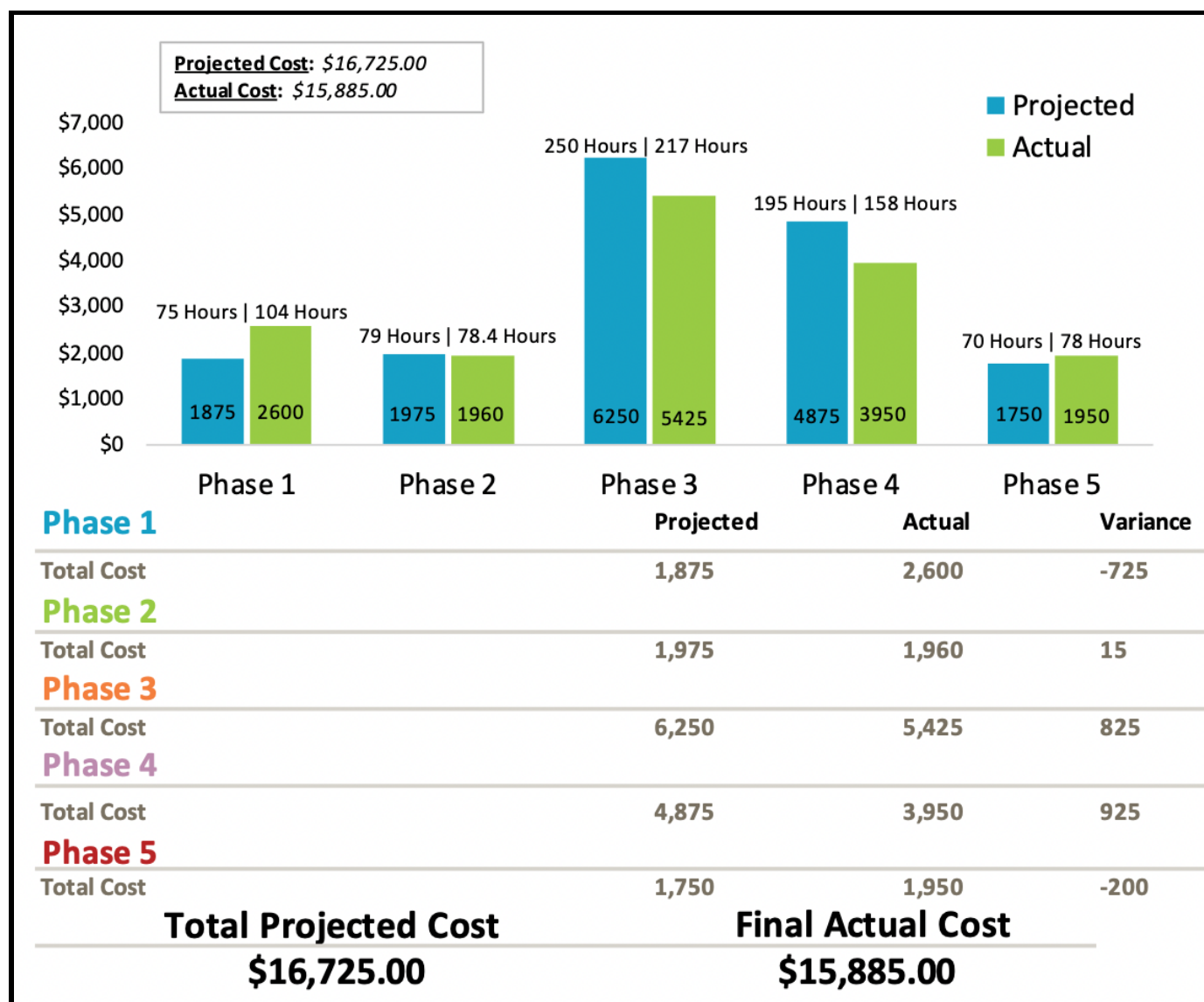
<u>ID</u>	<u>Task Name</u>	<u>Duration</u>	<u>Start</u>	<u>Finish</u>	<u>Resource Names</u>	<u>% Complete</u>
<b><u>1.0</u></b>	<b><u>Team Saira - Phase 1</u></b>	<u>27 days</u>	<u>1/26/2022</u>	<u>2/22/2022</u>		<u>100.00%</u>
<b><u>1.1.0</u></b>	<b><u>Project Proposal</u></b>	<u>7 days</u>	<u>1/26/2022</u>	<u>2/1/2022</u>		<u>100.00%</u>
<b><u>1.1.1</u></b>	<u>Team Formation</u>	<u>2 days</u>	<u>1/27/2022</u>	<u>1/29/2022</u>	All	<u>100.00%</u>
<b><u>1.1.2</u></b>	<u>Team Roles &amp; Meeting</u>	<u>2 days</u>	<u>1/30/2022</u>	<u>1/30/2022</u>	All	<u>100.00%</u>
<b><u>1.1.3</u></b>	<u>Report 0</u>	<u>1 day</u>	<u>1/31/2022</u>	<u>2/1/2022</u>	All	<u>100.00%</u>
<b><u>1.1.4</u></b>	<u>Interview with Customer</u>	<u>1 day</u>	<u>2/1/2022</u>	<u>2/1/2022</u>	All	<u>100.00%</u>
<b><u>1.2.0</u></b>	<b><u>Project Research</u></b>	<u>6 days</u>	<u>2/2/2022</u>	<u>2/7/2022</u>		<u>100.00%</u>
<b><u>1.2.1</u></b>	<u>Previous Group Research</u>	<u>2 days</u>	<u>2/2/2022</u>	<u>2/3/2022</u>	All	<u>100.00%</u>
<b><u>1.2.2</u></b>	<u>Requirements Overview</u>	<u>2 days</u>	<u>2/3/2022</u>	<u>2/4/2022</u>	All	<u>100.00%</u>
<b><u>1.2.3</u></b>	<u>Prepare for JAD 1</u>	<u>2 days</u>	<u>2/5/2022</u>	<u>2/7/2022</u>	All	<u>100.00%</u>
<b><u>1.2.4</u></b>	<u>Team Meeting</u>	<u>1 day</u>	<u>2/7/2022</u>	<u>2/7/2022</u>	All	<u>100.00%</u>
<b><u>1.3.0</u></b>	<b><u>JAD 1</u></b>	<u>2 days</u>	<u>2/8/2022</u>	<u>2/9/2022</u>		<u>100.00%</u>
<b><u>1.3.1</u></b>	<u>JAD 1 Meeting</u>	<u>1 day</u>	<u>2/8/2022</u>	<u>2/8/2022</u>	All	<u>100.00%</u>
<b><u>1.3.2</u></b>	<u>Team Meeting Discussing JAD1</u>	<u>1 day</u>	<u>2/9/2022</u>	<u>2/9/2022</u>	All	<u>100.00%</u>
<b><u>1.4.0</u></b>	<b><u>Report 1</u></b>	<u>12 days</u>	<u>2/10/2022</u>	<u>2/10/2022</u>		<u>100.00%</u>
<b><u>1.4.1</u></b>	<u>Set-up Report &amp; Tasks</u>	<u>1 day</u>	<u>2/10/2022</u>	<u>2/22/2022</u>	All	<u>100.00%</u>
<b><u>1.4.2</u></b>	<u>Report 1 Draft</u>	<u>5 days</u>	<u>2/10/2022</u>	<u>2/15/2022</u>	All	<u>100.00%</u>
<b><u>1.4.3</u></b>	<u>Sprint Meeting with Customer</u>	<u>1 day</u>	<u>2/13/2022</u>	<u>2/13/2022</u>	All	<u>100.00%</u>
<b><u>1.4.4</u></b>	<u>Report 1 Final</u>	<u>5 days</u>	<u>2/15/2022</u>	<u>2/22/2022</u>	All	<u>100.00%</u>
<b><u>2</u></b>	<b><u>Team Saira - Phase 2</u></b>	<u>12 days</u>	<u>2/22/2022</u>	<u>3/8/2022</u>		<u>100.00%</u>
<b><u>2.1.0</u></b>	<b><u>JAD 2</u></b>					<u>100.00%</u>
<b><u>2.1.1</u></b>	<u>Pererepare For JAD 2</u>	<u>2 days</u>	<u>2/22/2022</u>	<u>2/23/2022</u>		<u>100.00%</u>
<b><u>2.1.2</u></b>	<u>JAD 2 Meeting</u>	<u>1 day</u>	<u>2/24/2022</u>	<u>2/24/2022</u>		<u>100.00%</u>
<b><u>2.1.3</u></b>	<u>Team Meeting</u>	<u>1 day</u>	<u>2/24/2022</u>	<u>2/24/2022</u>		<u>100.00%</u>
<b><u>2.1.4</u></b>	<u>Finalize Requirements</u>	<u>1 day</u>	<u>2/25/2022</u>	<u>2/25/2022</u>		<u>100.00%</u>

<u>2.2.0</u>	<b><u>Report 2</u></b>	<u>11 days</u>	<u>2/25/2022</u>	<u>3/8/2022</u>		<u>100.00%</u>
<u>2.2.1</u>	<u>Set-up Report &amp; Tasks</u>	<u>1 day</u>	<u>2/25/2022</u>	<u>2/25/2022</u>		<u>100.00%</u>
<u>2.2.2</u>	<u>Report 2 Draft</u>	<u>4 days</u>	<u>2/26/2022</u>	<u>3/1/2022</u>		<u>100.00%</u>
<u>2.2.3</u>	<u>Report 2 Final</u>	<u>7 days</u>	<u>3/2/2022</u>	<u>3/8/2022</u>		
<u>2.3.0</u>	<b><u>Image Development</u></b>		<u>3/1/2022</u>	<u>3/5/2022</u>		<u>100%</u>
<u>2.3.1</u>	<u>Study Previous Group Code</u>	<u>3 days</u>	<u>3/1/2022</u>	<u>3/3/2022</u>		<u>100%</u>
<u>2.3.2</u>	<u>Test Image Pulling</u>	<u>2 days</u>	<u>3/2/2022</u>	<u>3/3/2022</u>		<u>100%</u>
<u>2.3.3</u>	<u>Test JSON for Sending Images</u>	<u>2 day</u>	<u>3/4/2022</u>	<u>3/5/2022</u>		<u>100%</u>
<u>3.0</u>	<b><u>Team Saira - Phase 3</u></b>	<u>22 days</u>	<u>3/22/2022</u>	<u>4/12/2022</u>		<u>100.00%</u>
<u>3.1.0</u>	<b><u>Cloud Development</u></b>	<u>6 days</u>	<u>3/22/2022</u>	<u>3/27/2022</u>		<u>100.00%</u>
<u>3.1.1</u>	<u>Set-up Google Cloud</u>	<u>1 day</u>	<u>3/22/2022</u>	<u>3/22/2022</u>		<u>100.00%</u>
<u>3.1.2</u>	<u>Test OSmnx</u>	<u>4 days</u>	<u>3/23/2022</u>	<u>3/26/2022</u>		<u>100.00%</u>
<u>3.1.3</u>	<u>Give ML Team Images to Test</u>	<u>1 day</u>	<u>3/27/2022</u>	<u>3/27/2022</u>		<u>100.00%</u>
<u>3.2.0</u>	<b><u>UI Development</u></b>	<u>4 days</u>	<u>3/27/2022</u>	<u>3/31/2022</u>		<u>100.00%</u>
<u>3.2.1</u>	<u>Develop Search Bar</u>	<u>2 day</u>	<u>3/27/2022</u>	<u>3/28/2022</u>		<u>100.00%</u>
<u>3.2.2</u>	<u>Implement Filters</u>	<u>1 day</u>	<u>3/29/2022</u>	<u>3/29/2022</u>		<u>100.00%</u>
<u>3.2.3</u>	<u>Establish a Confidence Interval</u>	<u>1 day</u>	<u>3/30/2022</u>	<u>3/30/2022</u>		<u>100%</u>
<u>3.3.0</u>	<b><u>Prototype 1</u></b>	<u>5 days</u>	<u>4/1/2022</u>	<u>4/5/2022</u>		<u>100.00%</u>
<u>3.3.1</u>	<u>Prepare For Prototype 1</u>	<u>3 days</u>	<u>4/1/2022</u>	<u>4/3/2022</u>		<u>100.00%</u>
<u>3.3.2</u>	<u>Prototype 1</u>	<u>1 day</u>	<u>4/4/2022</u>	<u>4/4/2022</u>		<u>100.00%</u>
<u>3.3.3</u>	<u>Team Meeting</u>	<u>1 day</u>	<u>4/5/2022</u>	<u>4/5/2022</u>		<u>100.00%</u>
<u>3.4.0</u>	<b><u>Report 3</u></b>	<u>9 days</u>	<u>4/3/2022</u>	<u>4/12/2022</u>		<u>100.00%</u>
<u>3.4.1</u>	<u>Set-up Report &amp; Tasks</u>	<u>1 day</u>	<u>4/3/2022</u>	<u>4/3/2022</u>		<u>100.00%</u>
<u>3.4.2</u>	<u>Report 3 Draft</u>	<u>1 day</u>	<u>4/3/2022</u>	<u>4/5/2022</u>		<u>100%</u>
<u>3.4.3</u>	<u>Report 3 Final</u>	<u>7 days</u>	<u>4/6/2022</u>	<u>4/12/2022</u>		<u>100.00%</u>
<u>4.0</u>	<b><u>Team Saira - Phase 4</u></b>	<u>22 days</u>	<u>4/12/2022</u>	<u>5/3/2022</u>		<u>100.00%</u>
<u>4.1.0</u>	<b><u>Front/Back-End Development</u></b>	<u>12 days</u>	<u>4/12/2022</u>	<u>4/23/2022</u>		<u>100.00%</u>
<u>4.1.1</u>	<u>Process images using ML algorithm</u>	<u>5 days</u>	<u>4/12/2022</u>	<u>4/15/2022</u>		<u>100.00%</u>

<u>4.1.2</u>	<u>Configure OSmnx to work with user input</u>	<u>2 days</u>	<u>4/15/2022</u>	<u>4/16/2022</u>		<u>100.00%</u>
<u>4.1.3</u>	<u>Connect Image pulling script to UI</u>	<u>8 days</u>	<u>4/16/2022</u>	<u>4/23/2022</u>		<u>100.00%</u>
<u>4.1.4</u>	<u>Develop Flask Application Hosting</u>	<u>8 days</u>	<u>4/16/2022</u>	<u>4/23/2022</u>		
<u>4.2.0</u>	<b><u>Prototype 2</u></b>	<u>3 days</u>	<u>4/23/2022</u>	<u>4/25/2022</u>		<u>100.00%</u>
<u>4.2.1</u>	<u>Prepare For Prototype 2</u>	<u>2 days</u>	<u>4/23/2022</u>	<u>4/24/2022</u>		<u>100%</u>
<u>4.2.2</u>	<u>Prototype 2</u>	<u>1 day</u>	<u>4/25/2022</u>	<u>4/25/2022</u>		<u>100%</u>
<u>4.2.3</u>	<u>Team Meeting</u>	<u>1 day</u>	<u>4/25/2022</u>	<u>4/25/2022</u>		<u>100%</u>
<u>4.3.0</u>	<b><u>Report 4</u></b>	<u>10 days</u>	<u>4/24/2022</u>	<u>5/3/2022</u>		<u>100%</u>
<u>4.3.1</u>	<u>Set-up Report &amp; Tasks</u>	<u>1 day</u>	<u>4/24/2022</u>	<u>4/24/2022</u>		<u>100%</u>
<u>4.3.2</u>	<u>Report 4 Draft</u>	<u>3 days</u>	<u>4/24/2022</u>	<u>4/26/2022</u>		<u>100%</u>
<u>4.3.3</u>	<u>Report 4 Final</u>	<u>7 days</u>	<u>4/27/2022</u>	<u>5/3/2022</u>		<u>100%</u>
<u>5.0</u>	<b><u>Team Saira - Phase 5</u></b>	<u>14 days</u>	<u>5/4/2022</u>	<u>5/17/2022</u>		<u>100%</u>
<u>5.1.0</u>	<b><u>Front-End Development</u></b>	<u>13 days</u>	<u>5/4/2022</u>	<u>5/15/2022</u>		<u>100%</u>
<u>5.1.1</u>	<u>Continue to work on UI</u>	<u>10 days</u>	<u>5/4/2022</u>	<u>5/12/2022</u>		<u>100%</u>
<u>5.1.2</u>	<u>Implement Data Display</u>	<u>4 days</u>	<u>5/10/2022</u>	<u>5/14/2022</u>		<u>100%</u>
<u>5.2.0</u>	<b><u>UI Development</u></b>	<u>7 days</u>	<u>5/5/2022</u>	<u>5/12/2022</u>		<u>100%</u>
<u>5.2.1</u>	<u>Filter number of pictures, the cost, or CI</u>	<u>7 days</u>	<u>5/5/2022</u>	<u>5/12/2022</u>		<u>100%</u>
<u>5.3.0</u>	<b><u>Database Development</u></b>	<u>4 days</u>	<u>5/7/2022</u>	<u>5/11/2022</u>		<u>100%</u>
<u>5.3.1</u>	<u>Develop Database</u>	<u>4 days</u>	<u>5/7/2022</u>	<u>5/11/2022</u>		<u>100%</u>
<u>5.3.2</u>	<u>Store KAB score, location, date, etc</u>	<u>2 days</u>	<u>5/9/2022</u>	<u>5/10/2022</u>		<u>100%</u>
<u>5.4.0</u>	<b><u>Final</u></b>	<u>7 days</u>	<u>5/10/2022</u>	<u>5/17/2022</u>		<u>100%</u>
<u>5.4.1</u>	<u>Final Report</u>	<u>6 days</u>	<u>5/10/2022</u>	<u>5/16/2022</u>		<u>100%</u>
<u>5.5.0</u>	<b><u>Final Presentation</u></b>	<u>5 days</u>	<u>5/14/2022</u>	<u>5/17/2022</u>		<u>100%</u>

<u>5.5.1</u>	<u>Prepare For Presentation</u>	<u>3 days</u>	<u>5/14/2022</u>	<u>5/16/2022</u>		<u>100%</u>
<u>5.5.2</u>	<u>Rehearse Presentation</u>	<u>1 day</u>	<u>5/16/2022</u>	<u>5/16/2022</u>		<u>100%</u>
<u>5.5.3</u>	<u>Present Final Presentation</u>	<u>1 day</u>	<u>5/17/2022</u>	<u>5/17/2022</u>		<u>100%</u>

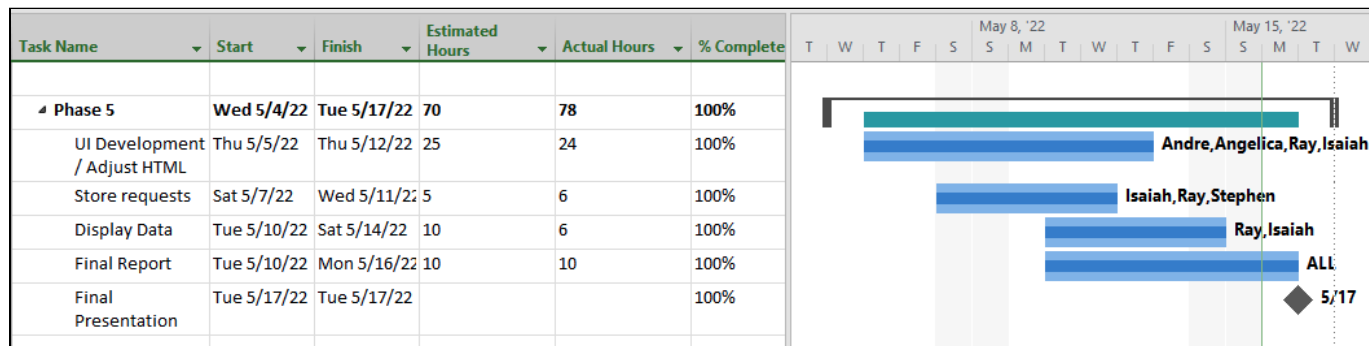
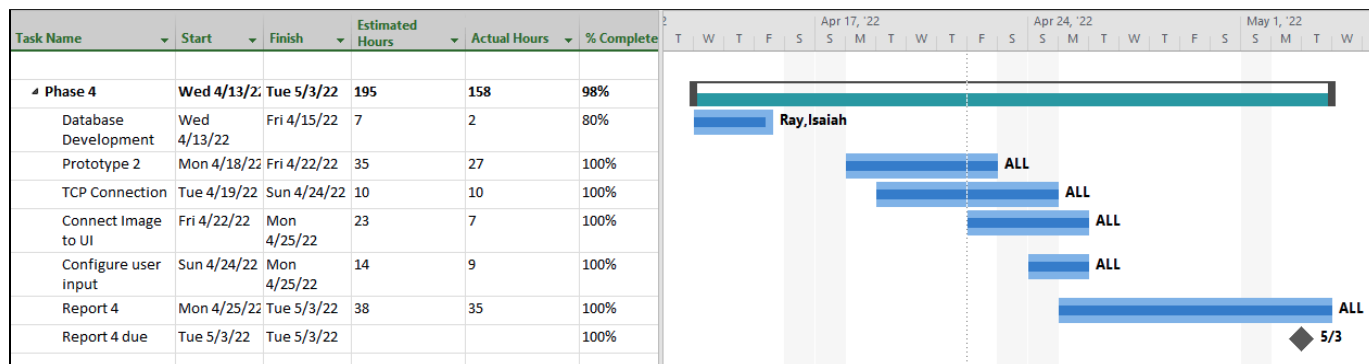
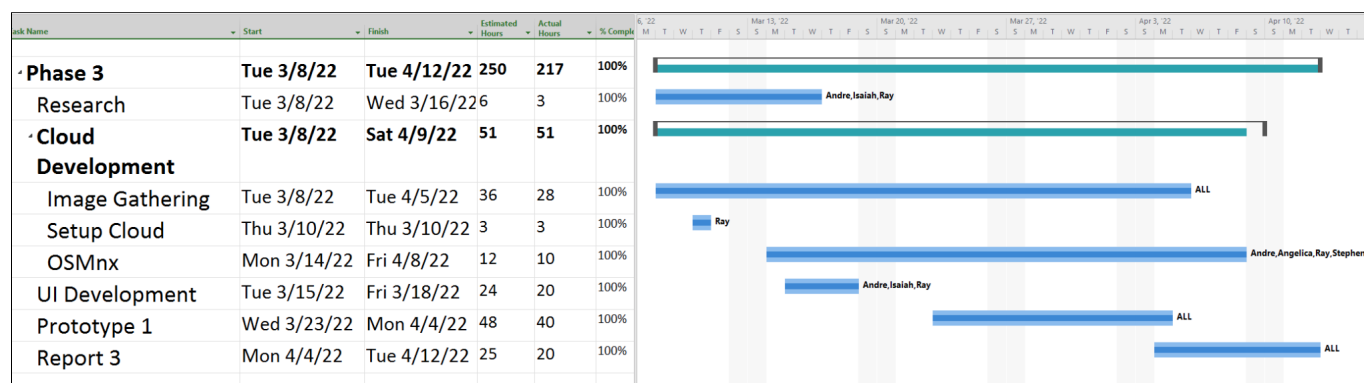
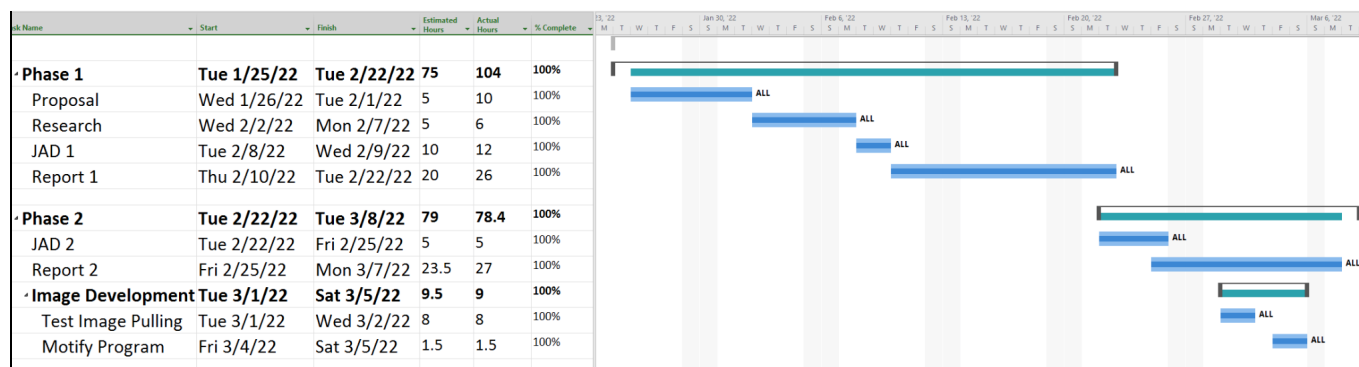
### 3.5 Cost Tracking Chart



### 3.5 Cost Tracking Breakdown

Project Milestone's Cost Estimates				Project Milestone's Actual Cost		
Project Phases	Projected Hours	Cost per Hour	Projected Total Cost	Actual Hours As of 5/17	Actual Costs	Difference
Phase 1	5 members			1/25-2/22		
	75	\$25	\$1,875	104	\$2,600.00	(\$725.00)
Phase 2	5 members			2/22-3/8		
	79	\$25	\$1,975	78.4	\$1,960.00	\$15.00
Phase 3	5 members			3/8-4/12		
	250	\$25	\$6,250	217	\$5,425	\$825
Phase 4	5 members			4/12-5/3		
	195	\$25	\$4,875	158	\$3,950	\$925
Phase 5	5 members			5/3-5/17		
	70	\$25	\$1,750	78	\$1,950	(\$200)
<b>Total</b>	<b>669</b>	<b>25 per hr</b>	<b>\$16,725</b>	<b>635.4</b>	<b>\$15,885</b>	<b>\$840</b>
Projected Total Hours	<b>669</b>	<b>Total Projected Cost</b>		<b>Final Total Actual Cost</b>		
Team Fee's	<b>\$16,725.00</b>	<b>\$16,725.00</b>		<b>\$15,885.00</b>		

### 3.6 Gantt Chart



# Meeting Minutes

## Call to order

A meeting of Team SAIRA with Dr. Schultz was held on Zoom at 3pm on April 25<sup>th</sup>, 2022 and lasted roughly 30 minutes.

## Attendees

Attendees included Dr. Wesley Schultz, Ray Cruz(Scrum Leader), Angelica Olmedo(Project Manager), Andre Castillo(Systems Analyst), Stephen Palumbo(Documentation), and Isaiah Martin(Programmer).

## Reports

The meeting was based around Prototype 2. We discussed how the functional UI can take a json file and read inputs. We have also set up the TCP connection and developed the backend(flask). Additionally, we mentioned how the machine learning team needed a fresh set up of 5,000 images due to one of the psychology students causing the data set to be corrupted. We discussed how during this current phase the total costs was around \$16,025, which is about 1800 under what we had estimated. As the meeting continued, we discussed how it takes roughly 25 minutes to process 1600 images. Towards the end of the meeting, Dr. Schultz gave a use case of what he would potentially use this system for. It would be nice if he is able to pick 100 random locations, 1600 per city and receive all 160,000 scores which would be stored in a database. Giving the system the ability to have an ongoing request. Thus, giving developers a starting point to work with. As a team we discussed that it is feasible but would need to discuss with the machine learning team. Overall, this was a productive meeting and we feel we are making progress towards the end product.

## **Unfinished business/Open Issues**

- Plan to work on a single search bar
- Tool that would let you force a smaller number of images and be able to manually override the system, so it's more user friendly rather than being hardcoded.
- Storing previously searched data

## **Goal**

-The end goal is to ultimately have a fully functioning web application that can be used for years to come as well as a tool designed for Keep America Beautiful to use to facilitate asking questions about litter to the entire global community.


## **Announcements**


- As a team, we plan to have scheduled check-ins with the client throughout the semester. Dr. Schultz mentioned he liked to be part of Spring meetings.
- We agreed that Sundays at 1 pm will work best when it comes to accommodate everyone's schedule, as well as brief or bi-weekly updates.
- Additionally, Team SAIRA plans to have daily meetings and weekly scrum meetings to stay on top of our progress and goals towards successfully completing this project.




## Timesheets For Week 14 and 15


Andre Castillo

Timesheet for Week Ending: _____		Week 14			
Team Name	Team SAIRA				
Member Name	Andre Castillo	Role	Application Development		
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
5/3/2022	UI Development	4	4	0	yes
5/3/2022	Meetings	5	5	0	yes
Totals for Week in hours		9	9	0	

Timesheet for Week Ending: _____		Week 15			
Team Name	Team SAIRA				
Member Name	Andre Castillo			Role	Application Development
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
5/10/2022	UI Development	4	4	0	yes
5/10/2022	Meetings	4	4	0	yes
Totals for Week in hours		8	8	0	


### Angelica Olmedo

Timesheet for Week Ending: _____		Week 14			
Team Name	Team SAIRA				
Member Name	Angelica Olmedo			Role	Project Manager
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
5/3/2022	UI Development	3	2	-1	yes
5/3/2022	Meetings	5	5	0	yes
Totals for Week in hours		8	7	-1	


Timesheet for Week Ending: _____		Week 15			
Team Name	Team SAIRA				
Member Name	Angelica Olmedo			Role	Project Manager
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
5/10/2022	UI Development	4	4	0	yes
5/10/2022	Final Report	2	2	0	yes
5/10/2022	Final Presentation	2	2	0	yes
5/10/2022	Meetings	4	4	0	yes
Totals for Week in hours		12	12	0	

## Isaiah Martin

	Timesheet for Week Ending: _____ Week 14										
Team Name	_____ Team SAIRA _____										
Member Name	_____ Isaiah Martin _____								Role _____	Application Development	
Signed:	_____ <i>[Signature]</i> _____										
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?						
5/3/2022	UI Development		4	4	0 yes						
5/3/2022	Meetings		4	4	0 yes						
Totals for Week in hours			8	8	0						

Timesheet for Week Ending: _____		Week 15			
Team Name	Team SAIRA				
Member Name	Isaiah Martin		Role	Application Development	
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
5/10/2022	Filter number of pictures, the cost, or CI	2	2	0	yes
5/10/2022	Database Visualization	5	3	-2	yes
5/10/2022	Meetings	4	4	0	yes
Totals for Week in hours		11	9	-2	

### Stephen Palumbo

Timesheet for Week Ending: _____		Week 14			
Team Name	Team SAIRA				
Member Name	Stephen Palumbo		Role	Documentation	
Signed:					
Date	Task	Planned Hours	Actual Hours	Difference	Task Completed?
5/3/2022	Store KAB score, location, date, etc	3	4	1	yes
5/3/2022	Meetings	5	5	0	yes
Totals for Week in hours		8	9	1	

Timesheet for Week Ending: \_\_\_\_\_ Week 15

Team Name	Team SAIRA
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Member Name	Stephen Palumbo	Role	Documentation
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Signed:

Stephen Talbot

		Planned	Actual		Task
Date	Task	Hours	Hours	Difference	Completed?

5/10/2022	Store KAB score, location, date, etc	2	2	0	yes
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5/10/2022	Final Report	2	2	0	yes
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5/10/2022	Meetings	4	4	0	yes
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Totals for Week in hours	8	8	0
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## Ray Cruz

Timesheet for Week Ending: \_\_\_\_\_ Week 14

Team Name	Team SAIRA
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Member Name	Ray Cruz	Role	Team Leader
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Signed:

Reed T. Cozz

		Planned	Actual		Task
Date	Task	Hours	Hours	Difference	Completed?

5/3/2022	Data Visualization	5	3	-2	yes
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5/3/2022	Adjust HTML	3	3	0	yes
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5/3/2022	Meetings	5	5	0	yes
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Totals for Week in hours	13	11	-2
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