Squander

SPRING 2022 CAPSTONE PROJECT | PROF HENRY WONG

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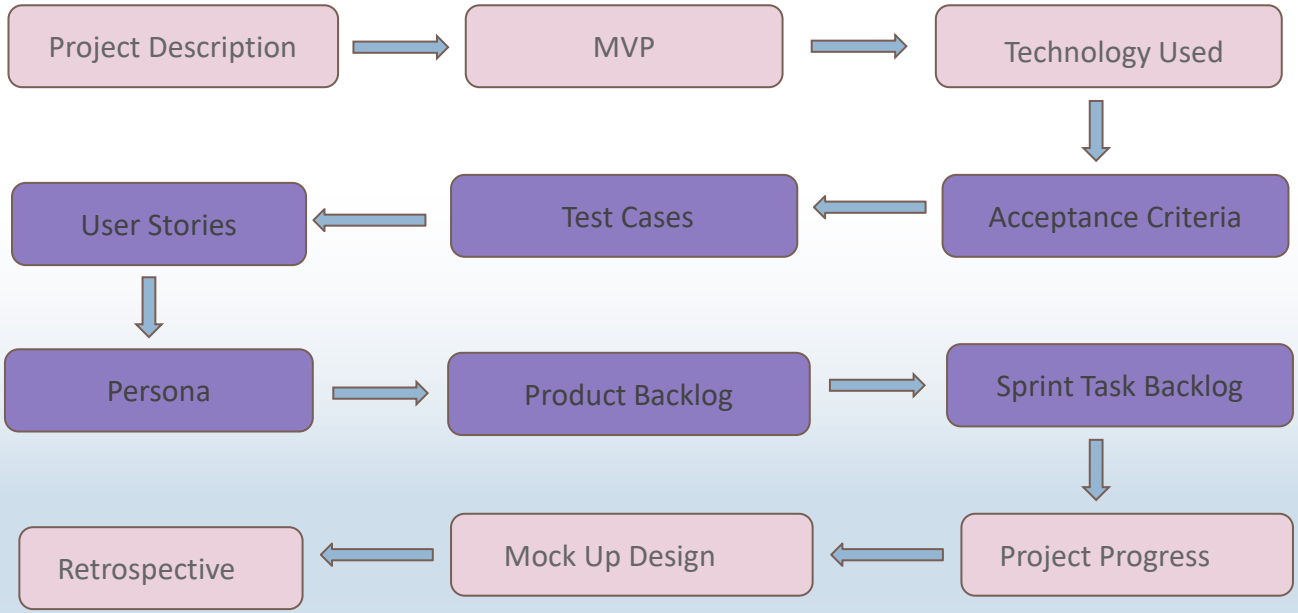
Agenda


Project Description
MVP
Technology Used
Acceptance Criteria
Test Cases
User Stories
Persona
Product Backlog
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Project Progress
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Retrospective

Project Description

Squander is an application that aims to help users organize and plan the disposal of their waste.

App uses Machine Learning Algorithm to recognize waste from images taken from places such as households, construction sites, and public places to enable the user to distinguish recyclable waste and provide a way for its proper disposal.

User can analyze what amount of waste he is producing so that they can minimize or recycle the waste in an efficient way.

It also provides a mechanism to know individual contribution to environment protection and how its global impact can save our environment.

Minimal Viable Product (MVP)

- Recognition Model for Image Recognition of waste items
- Model responds with confidence values on labels of recognized waste items
- Results based on the waste items categorized with how many no of recyclable items found
- Quick and easy method for finding the nearest recycling companies location

Steps:

Uploading Image

Processing Image

Image Results

Find Nearby Location

Technology Used

Frontend

Machine Learning API

Backend

Integrated Map API

Machine Learning Library

Object Storage Service

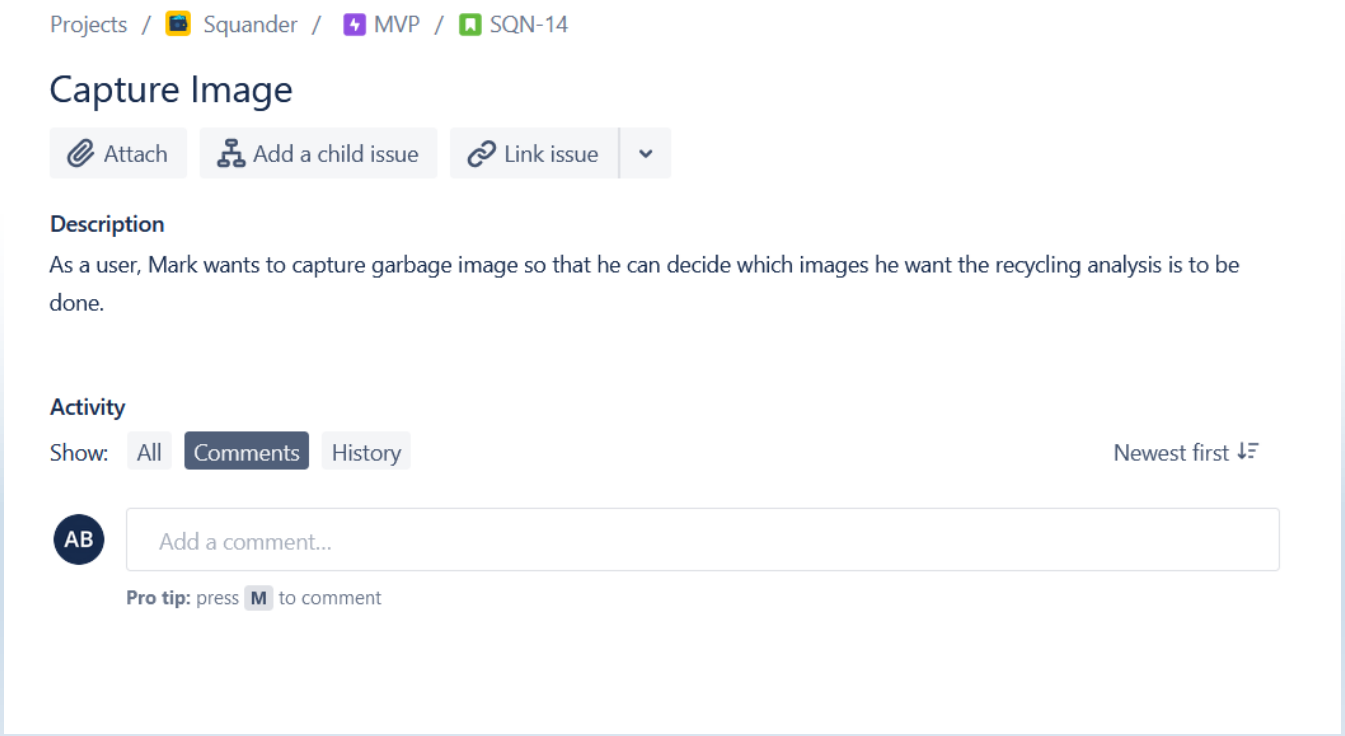
iOS Development Toolkit

User Stories

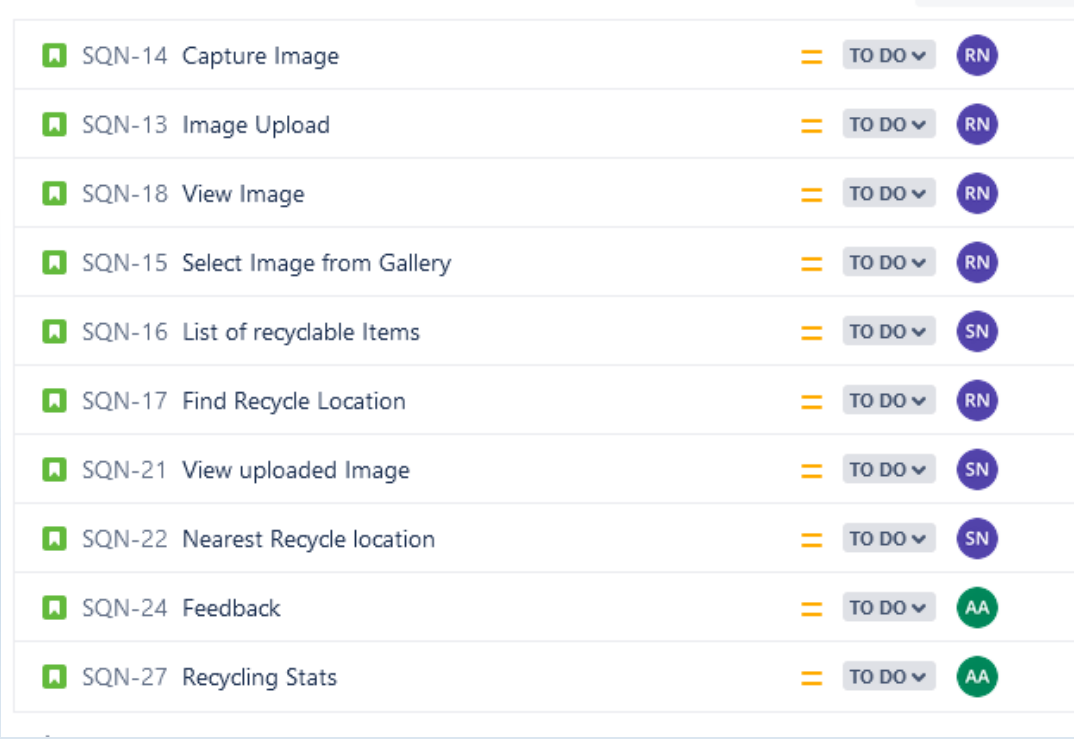
- User Stories - Sample
- User Story Backlog

- Tasks (Enablers) - Sample
- Tasks Backlog

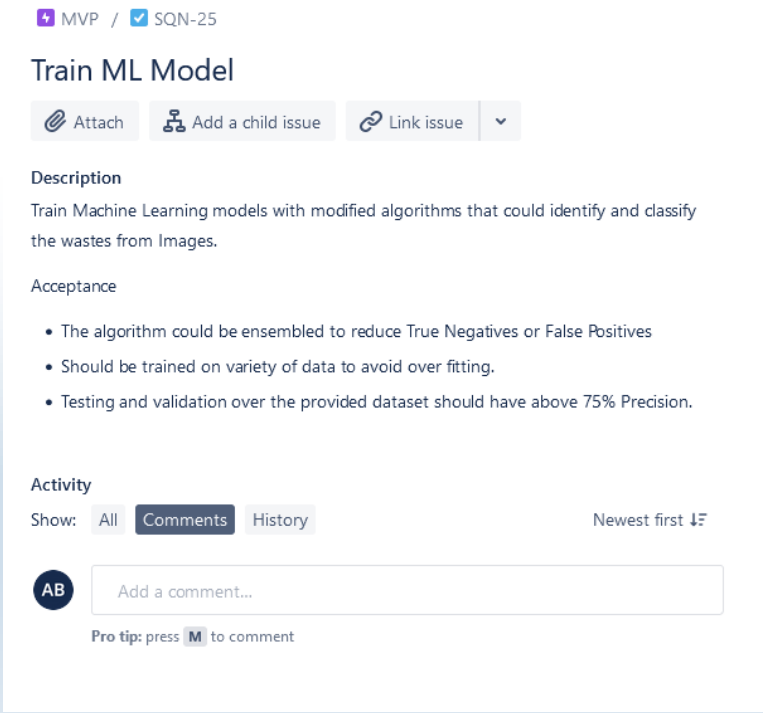
Stories Description



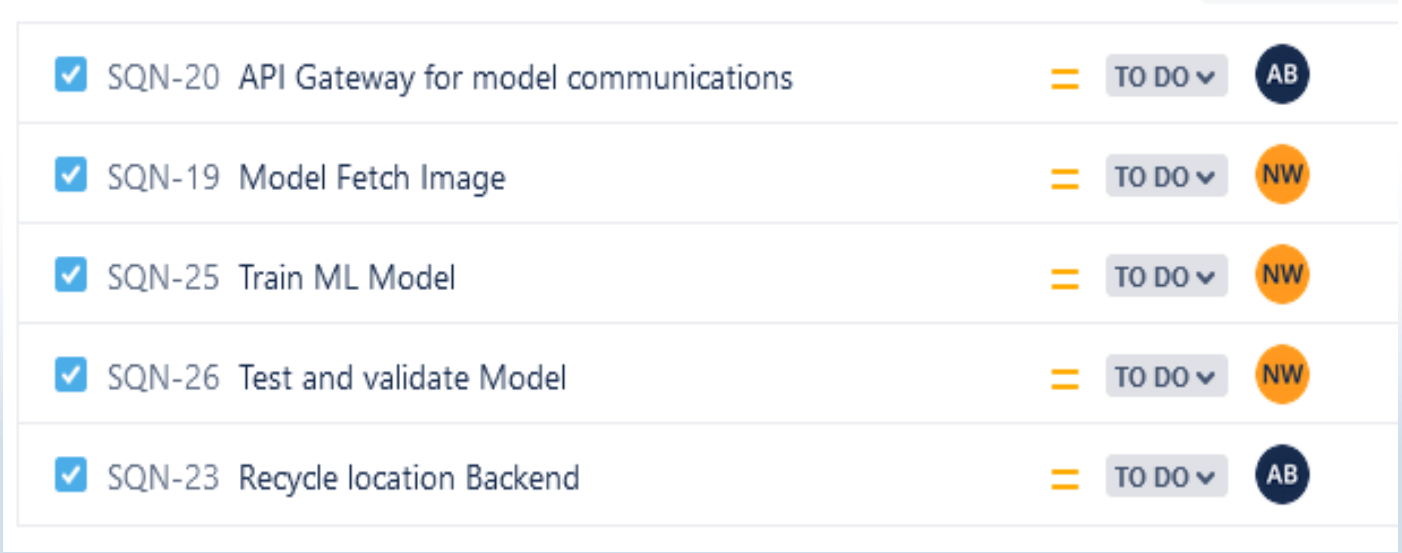
Stories


SQN-14 Capture Image
TO DO
RN
SQN-13 Image Upload
TO DO
RN
SQN-18 View Image
TO DO
RN
SQN-15 Select Image from Gallery
TO DO
RN
SQN-16 List of recyclable Items
TO DO
SN
SQN-17 Find Recycle Location
TO DO
RN
SQN-21 View uploaded Image
TO DO
SN
SQN-22 Nearest Recycle location
TO DO
SN
SQN-24 Feedback
TO DO
AA
SQN-27 Recycling Stats
TO DO
AA

Tasks (Enablers) Description



Tasks (Enablers)



Acceptance Criteria

SQN-13	As a user I want to capture image of garbage created by household waste so that squander app can tell me which items can I recycle.	
	Scenario	Capture Image of garbage
	Given	User tries to capture image of items to be recycled
	When	Capture image button is clicked
	Then	Image of garbage waste is captured

Acceptance Criteria (Continued..)

SQN-14	As a homeowner, Mark needs to upload garbage image so that he can find recycling Locations for construction leftover	
	Scenario	Upload Image
	Given	Mark has captured image of garbage or selected from gallery
	When	Clicks on image capture
	Then	Garbage Image is uploaded for Processing.

Acceptance Criteria (Continued..)

SQN-18	As a user, Mark wants to view image uploaded so that he can verify the uploaded image.
Scenario	View Image
Given	Mark capture Image of items to be recycled
When	Clicked on Capture Button
Then	Mark is able to view uploaded Image

Acceptance Criteria (Continued..)

SQN-15	As a user, Jill wants to select image already in the gallery so that he upload the image to the app to find which items to recycle.
Scenario	Select Image From gallery
Given	Image is available in the gallery.
When	Clicked on gallery icon capture screen.
Then	Select image from gallery

Acceptance Criteria (Continued..)

SQN-16	As a user,Jill wants to get list of items that can be recycled with name so that he can know recyclable item name.	
	Scenario	List of recyclable items
	Given	User uploads photo of garbage to be recycled.
	When	Processing of uploaded image is successful.
	Then	List of items with their name is available.

Acceptance Criteria (Continued..)

SQN-17	As a party host, Jill would like to know a good place to dispose off organic waste, so that he feels good about managing the waste.	
	Scenario	Find Compost Location
	Given	Jill knows what amount of recyclable waste is available.
	When	Clicks Recycle Button
	Then	Gets list of good place to dispose of organic waste.

Acceptance Criteria (Continued..)

SQN-21	As a user. I want to view the results of uploaded image with tag on items that can be recycled so that I can distinguish between recyclable and non recyclable waste.	
	Scenario	View Uploaded Image
	Given	User uploads photo of garbage to be recycled
	When	Processing of Image is successful
	Then	Should be able to see tags on image of recyclable items.

Acceptance Criteria (Continued..)

SQN-22	As a mechanic, Simon wants to find a nearest recycling location for metallic waste, so that we can get money for scraps.	
	Scenario	Nearest Recycle Location
	Given	Results of items that can be recyclable are available.
	When	Processing of Image is successful
	Then	Simon should get recycling Locations near to current locations.

Test Cases

Key	Test Cases	Test Data	Expected Results	Actual Results	Pass/Fail
SQD-1	Browse from the app	Home Screen	Users should be able to access the homepage of the app	Squander homepage will be visible with a image.	
SQD-2	Locate the Recycle Button	Home Screen	Users should be able to see the Recycle Button and it should be clickable	Click on the Recycle Button and the user is redirected to the recycle screen.	
SQD-3	Locate the Stats Button	Home Screen	Users should be able to see the Stats Button and it should be clickable	Click on the Stats Button and the user is redirected to the stats screen.	
SQD-4	Locate the Contribution Button	Home Screen	User should be able to see the Button and it should be clickable	Click on the Contribution Button and the user is redirected to the Contribution screen.	
SQD-5	Locate the NavBar	Home Screen	Users can move to all screens on-site using the NavBar	Click any link in NavBar and the user is redirected to the Home, Upload, FAQ, or About Us screen	
SQD-6	Click on the earth image	Home Screen	The image should be clickable	It should redirected us to upload image or capture image from camera,	
SQD-7	Locate Capture Button	Camera Screen	The capture button should be present on the middle bottom side of the screen	Capture Button will allow a user to capture an image of the items to be recycled .	
SQD-8	Locate photos Button	Camera Screen	The photo link which will be used to upload images from the gallery should be present on the bottom left side of the screen	Photo Button will open the gallery and allow a user to select an image.	
SQD-9	Locate Cancel Button	Camera Screen	The Cancel Button should be present on the top right side of the screen	The cancel button will allow a user to cancel the image being uploaded and return to home screen	
SQD-10	Locate the word Stats	Stats Screen	The text should be displayed on the middle top side of the screen	The text is displayed correctly with no errors.	
SQD-11	Locate the NavBar	Stats Screen	Users can move to all screens on-site using the NavBar	Click any link in NavBar and the user is redirected to the Home, Upload, FAQ, or About Us screen	
SQD-12	Locate Back Button	Stats Screen	Users should be able to see the Back Button and it should be clickable	Click on the Back Button and the user is redirected to the home screen.	
SQD-13	Locate the Recycle Button	Stats Screen	Users should be able to see the Recycle Button and it should be clickable	Click on the Recycle Button and the user is redirected to the recycle screen.	

Test Cases (Continued..)

Key	Test Cases	Test Data	Expected Results	Actual Results	Pass/Fail
SQD-14	Locate the Contribution Button	Stats Screen	User should be able to see the Button and it should be clickable	Click on the Contribution Button and the user is redirected to the Contribution screen.	
SQD-15	Locate the Stats Button	Stats Screen	Users should be able to see the Stats Button and it should be clickable	Click on the Stats Button and the user is redirected to the stats screen.	
SQD-16	Locate the Household Clickable Ribbon	Stats Screen	Users should be able to see the Household Ribbon and it should be clickable	Click on Household Ribbon and the user will see all the details of the application of the waste collected from household	
SQD-18	Locate the Public place Clickable Ribbon	Stats Screen	Users should be able to see the Public place Ribbon and it should be clickable	Click on the Public place Ribbon and the user will see all the details of the application of the waste collected from public places like hotel, restaurants, marriage halls etc	
SQD-19	Locate the Industrial Site Clickable Ribbon	Stats Screen	Users should be able to see the Industrial Site Ribbon and it should be clickable	Click on Industrial Site Ribbon and the user will see all the details of the application of the waste collected from the industrial site	
SQD-17	Locate the Construction Site Clickable Ribbon	Stats Screen	Users should be able to see the Construction Site Ribbon and it should be clickable	Click on Construction Site Ribbon and the user will see all the details of the application of the waste collected from construction site	
SQD-20	Locate the word Contribution	Contribution Screen	The text should be displayed on the middle top side of the screen	The text is displayed correctly with no errors.	
SQD-21	Locate the NavBar	Contribution Screen	Users can move to all screens on-site using the NavBar	Click any link in NavBar and the user is redirected to the Home, Upload, FAQ, or About Us Page	
SQD-22	Locate Back Button	Contribution Screen	Users should be able to see the Back Button and it should be clickable	Click on the Back Button and the user is redirected to the home screen.	
SQD-23	Locate the Recycle Button	Contribution Screen	Users should be able to see the Recycle Button and it should be clickable	Click on the Recycle Button and the user is redirected to the recycle page.	
SQD-24	Locate the Contribution Button	Contribution Screen	User should be able to see the Button and it should be clickable	Click on the Contribution Button and the user is redirected to the Contribution page.	
SQD-25	Locate the Stats Button	Contribution Screen	Users should be able to see the Stats Button and it should be clickable	Click on the Stats Button and the user is redirected to the stats page.	
SQD-26	Locate the Global Impact text	Contribution Screen	user should be able to see the text	The text displays all the details the how the application is helping in the environment.	

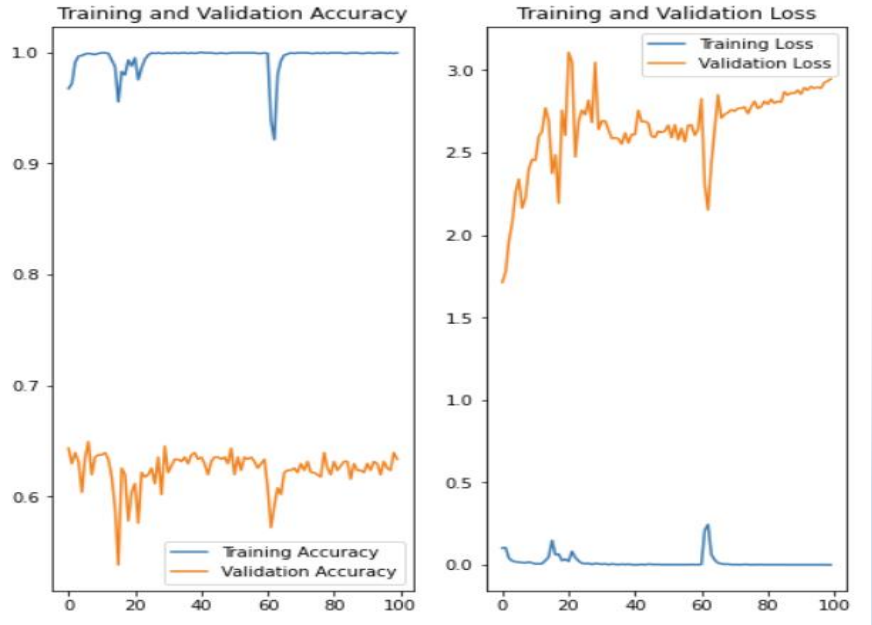
Product Backlog

Feature	Task	Progress	Priority	Sprint
Recognize Garbage and Classify		In progress	Must	
	Develop ML Algorthm	DONE	Must	2
	Train Model	DONE	Must	2
	Test Validate Model	DONE	Must	2
	Allow Model to Analyze Videos	In Progress	Could	3
	Allow Model to analyze more than one object per image	In Progress	Should	3
Create Application to Use Model		In Progress	Must	
	Design User Interface	DONE	Must	2
	Create Mock up Design	DONE	Must	2
	Develop Application	In Progress	Must	3
	Set up API Gateway for Model communication	In Progress	Must	3

Sprint Task Backlog

Task	Status
Allow Model to Fetch Images	DONE
Develop ML Algorthm	DONE
Train ML Model	DONE
Test and Validate ML Model	DONE
Collect Image data	DONE
Research Recycling Locations	DONE
Fetch Recycling Center based on Location	DONE
Design User Interface	DONE
Finish working on User Stories	DONE

Project Progress



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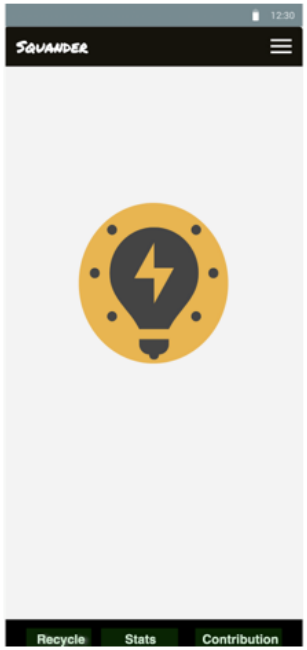
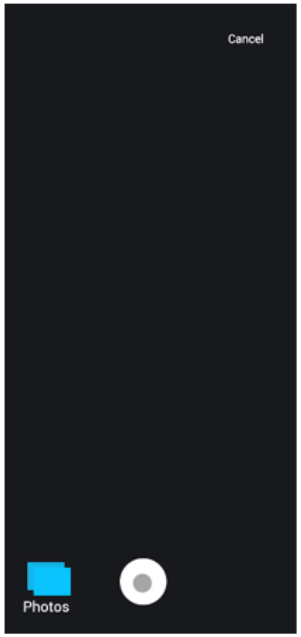
Mock Up Design

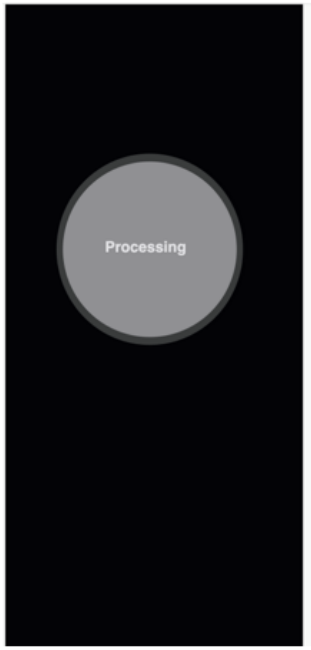


Home Screen

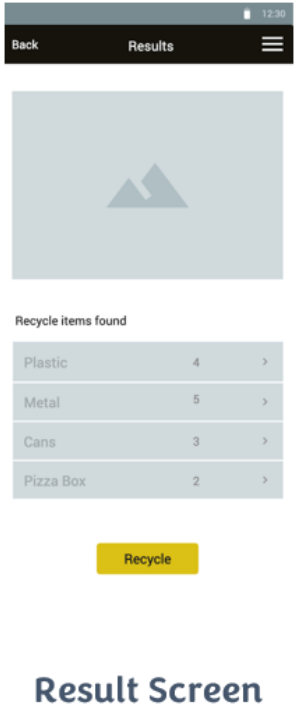


Capture Screen

Mock Up Design (Continued...)

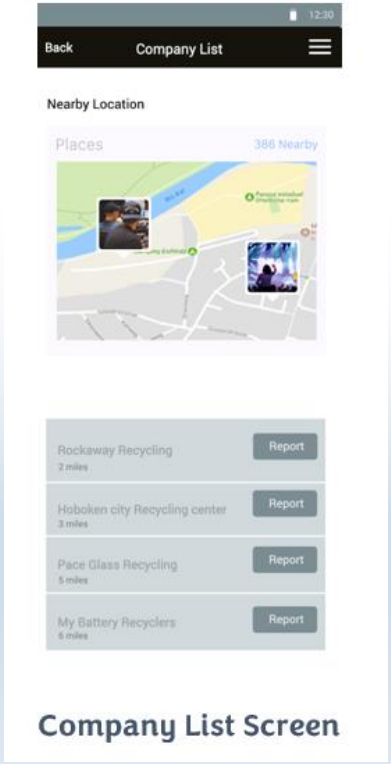


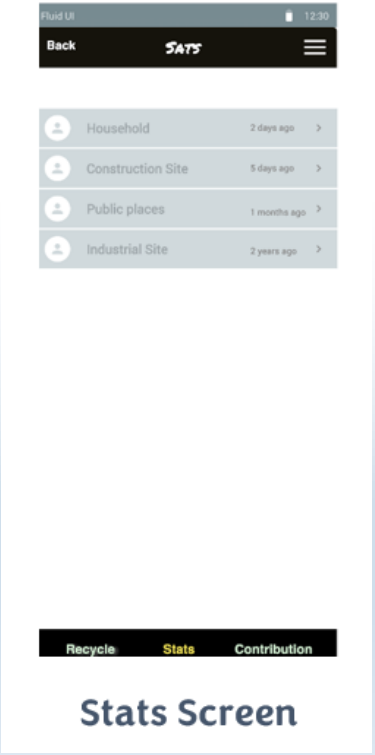
Processing Screen



Result Screen

Mock Up Design (Continued...)





Retrospective

- What went well
- What needs Improvement
- Action Items
- Board

What went well

- Communications between the team and setting the right expectation
- Kept proper track of tasks for each team member
- Quality of work good and organized

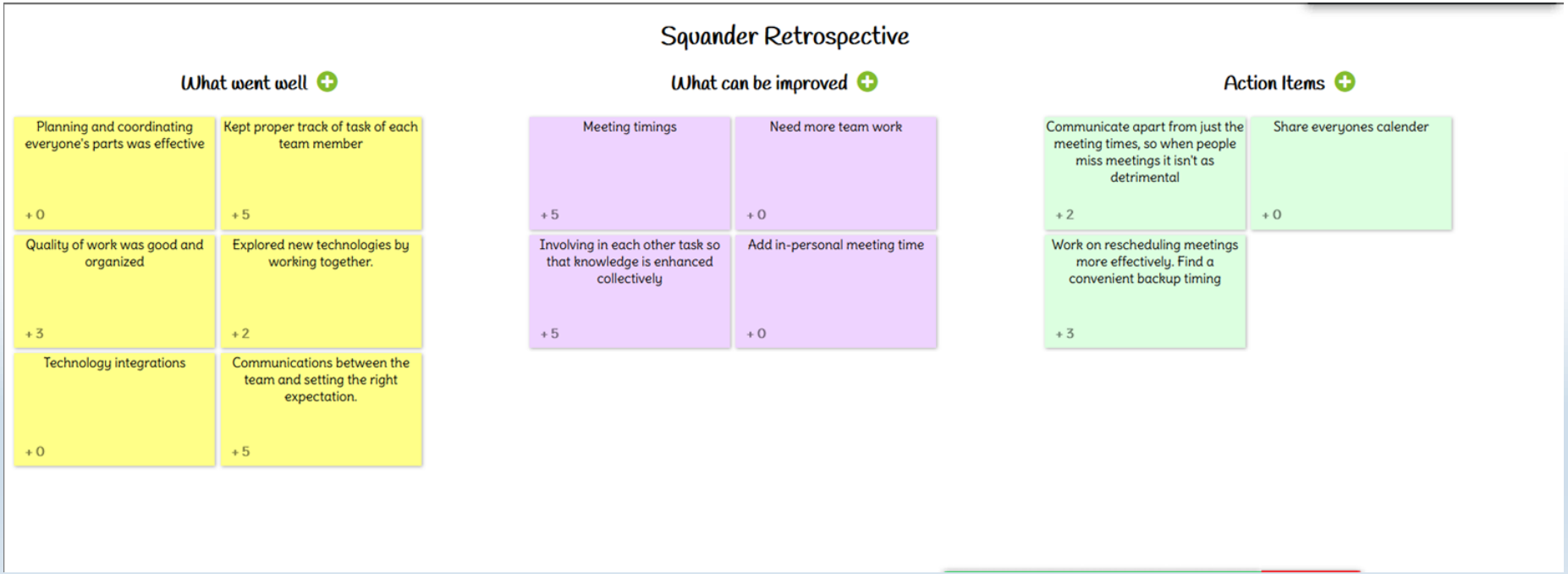
What needs improvement

- Better meeting timings
- Involving in each other task so that knowledge is enhanced collectively

Action Items

- Work on rescheduling the meetings more effectively
- Find a convenient Backup meeting timing
- Communicate apart from meetings

Idea Board


Squander Retrospective
What went well
Planning and coordinating everyone's parts was effective
+ 0
Kept proper track of task of each team member
+ 5
Quality of work was good and organized
+ 3
Explored new technologies by working together.
+ 2
Technology integrations
+ 0
Communications between the team and setting the right expectation.
+ 5
What can be improved
Meeting timings
+ 5
Need more team work
+ 0
Involving in each other task so that knowledge is enhanced collectively
+ 5
Add in-personal meeting time
+ 0
Action Items
Communicate apart from just the meeting times, so when people miss meetings it isn't as detrimental
+ 2
Share everyones calender
+ 0
Work on rescheduling meetings more effectively. Find a convenient backup timing
+ 3