Use Case ID:	#1		
Use Case Name:	Auto detect current location		
Created By:	Perlyn	Last Updated By:	Perlyn
Date Created:	1 September 2020	Date Last Updated:	22 September 2020

Actor:	User, Google Maps API
Description:	Use case is to detect the user's current location.
Preconditions:	User's location services must be enabled.
Postconditions:	The coordinates of the user's location must be generated.
Priority:	Highest
Frequency of Use:	Very frequent
Flow of Events:	1. The User must click on the button to auto detect current location. 2. The System uses the built-in GPS system to locate the user. 3. The System calls the Google Maps API to pass in the coordinates of the current location of user.
Extended By:	Manually receive user’s input on his location if auto-detection is unsuccessful.
Includes:	-
Special Requirements:	User's location services must be enabled
Assumptions:	The Google Maps API installed is the latest version
Notes and Issues:	NA

Use Case ID:	#2		
Use Case Name:	Manually receive user's input on his location.		
Created By:	Justin	Last Updated By:	Justin
Date Created:	8 September 2020	Date Last Updated:	22 September 2020

Actor:	User, Google Maps API
Description:	Use Case is to accept the user's manually inputted location.
Preconditions:	User must opt to manually input his/her location in the Application, when searching for Recycling Bins.
Postconditions:	The System uses the manually inputted location to generate its coordinates, then to search for the nearest 10 Recycling Bins.
Priority:	High
Frequency of Use:	Frequent
Flow of Events:	1. If the System fails to auto-detect location, the System must give the User the option to either retry or input location manually via a pop-up. 2. If the User opts to manually input the location, a text box appears allowing him to key in the postal code/location name for detection. 3. The User keys in his location and it is verified against a database of valid postal codes in Singapore. 4. If the postal code is valid, send the location to the Google Maps API.
Extended by:	-
Special Requirements:	-
Assumptions:	-
Notes and Issues:	The user can always opt to retry auto-detection of his/her location instead of manually keying in his location or address.

Use Case ID:	#3		
Use Case Name:	Return nearest Recycling Bins.		
Created By:	Justin	Last Updated By:	Justin
Date Created:	8 September 2020	Date Last Updated:	22 September 2020

Actor:	User, Data.gov API
Description:	Use case is to return the nearest Recycling Bins based on the user's location
Preconditions:	The user's location must be detected by the System.
Postconditions:	The coordinates of the Recycling Bins must be passed back as data into the System.
Priority:	Highest
Frequency of Use:	Very frequent
Flow of Events:	1. The System detects the User's locations. 2. The System calls Data.gov to retrieve coordinates of recycling bins. 3. The System uses the User's location coordinates to calculate the distance to the closest bins. 4. The System returns the coordinates of the nearest 10 Recycling Bins.
Extended by:	-
Includes:	The Google Maps API drops pins on the Application Map, corresponding to the returned coordinates.
Assumptions:	-

Use Case ID:	#4		
Use Case Name:	Drop pins on nearest recycling bins.		
Created By:	Song Yun	Last Updated By:	Song Yun
Date Created:	8 Sept 2020	Date Last Updated:	22 Sept 2020

Actor:	Google Map API
Description:	Use case is to drop pins to indicate the coordinates of the nearest recycling bins.
Preconditions:	Coordinates of the nearest recycling bins are obtained.
Postconditions:	Pins appear at the locations on the application map corresponding to the locations of the nearest recycling bins.
Priority:	Highest
Frequency of Use:	Very frequent
Flow of Events:	1. The System receives the coordinates of the nearest recycling bins from the Google Map API. 2. Google Map APIs must drop the pins at the respective coordinates on the application map.
Extended by:	-
Includes:	-
Special Requirements:	-
Assumptions:	Google API returns the correct coordinates of the nearest recycling bins.
Notes and Issues:	-

Use Case ID:	#5		
Use Case Name:	Provide a warning on the type of items recyclable		
Created By:	Song Yun	Last Updated By:	Song Yun
Date Created:	8 September 2020	Date Last Updated:	22 September 2020

Actor:	User
Description:	The System will provide a list of recyclable and non-recyclable items to the user.
Preconditions:	The user's device must have an active internet connection.
Postconditions:	The System must output suggestions on the type of items that are recyclable.
Priority:	Highest
Frequency of Use:	Very frequent
Flow of Events:	1. The User clicks on 'What are Recyclables' button. 2. The System must give a warning on the type of items recyclable. 3. The System must give a button to allow user to scan items.
Extends:	-
Includes:	-
Special Requirements:	The System must update the list of recyclable items from NEA's list.
Assumptions:	-
Notes and Issues:	-

Use Case ID:	#6		
Use Case Name:	Scan item to determine if it is recyclable.		
Created By:	XinRui	Last Updated By:	XinRui
Date Created:	8 September 2020	Date Last Updated:	8 September 2020

Actor:	User, Machine learning model within mobile app.
Description:	User will place the potential recyclable within camera view, and the Machine Learning model within the mobile app will determine whether the item is recyclable.
Preconditions:	The user has allowed the system to use his/her device's camera under his device settings.
Postconditions:	The system returns the item type and determines if it is recyclable.
Priority:	High
Frequency of Use:	Frequent (When the user wishes to clarify whether the item is recyclable.
Flow of Events:	1. The User clicks on "verify recyclable" button. 2. The System scans the item and calls the Flutter image recognition system. 3. The System gets the item type from the image recognition system and returns it to the user and alerts user if item is recyclable.
Extended by:	-
Assumptions:	The item presented is similar to our Machine Learning model's training images.