SC2006 Lab 1 documentation

Summary

Our goal is to develop a website that can educate Singapore residents on how to discard their waste properly. The website will help users identify the category of their waste materials using a trained image recognition model. Thereafter, the website will navigate the user to the nearest bin according to the type of waste the user is discarding, based on the user's location. Users will be able to review and favourite bin locations. The website will also provide educational content on the importance of responsible waste disposal, and guidelines on how to dispose of waste correctly. This project will help to support our nation's mission to be more environmentally-friendly.

Functional requirements

- Registration:

    1) User must be able to create an account using their email address.

    2) User must create a unique username for their account.

    3) User must create a password for their account.

        3a) Password must be between 6 and 18 characters.

    4) System must send an email with a verification code to User to verify their email address for their first time login.

    5) User must verify their email address with the verification code given.

- Login page:

    1) User must enter their username and password to login.

    2) System database must verify whether the username and password is correct.

    3) System must display error message when username and password is not correct.

    4) User must be able to click on the "Forget Password?" button to change their password if they forget their password.

5) System must send an email to User's email address for User to change their password.

- Navigation:

1) System must be able to show a list of locations of the bins, ranked from the nearest to the furthest from user's current location.

2) System must be able to access the location of the user through the Global Postioning System.

2a) User must be able to choose a location they wish to navigate from.

4) System must automatically display a map and navigate the user to the bin the user chose.

5) User must be able to click on each bin on the map to check the type of bin and its location.

6) System must be able to show a list of ratings and reviews of the bin selected by user.

- Personal Information page:

1) User must be able to check their recycling history.

2) User must be able to change their username.

- Information page:

1) User must be able to read educational articles about the importance of recycling.

2) User must be able to read guidelines on how to dispose their waste properly.

3) User must be able to access other organisations sites for more information.

- Recycle page:

1) User must be able to take a picture when they recycle.

2) User must be able to add the type of waste for the recycle history.

- Image Recognition page:

1) User must be able to choose to take a picture from their camera or upload a picture from their photo album.

2) System must receive a photo from the user and identify what category the waste should belong to.

- Main page:

1) System must display welcome message to the user.

2) Site must have a sliding window that displays important announcements to the user.

3) System must provide a navigation bar for the user to navigate to other pages.

- Email Notifications:

1) System must send an email notification to users when there is a change in bin information.

2) System must send email notification to users to prompt users to recycle every month.

- Feedback Page:

1) User must be able to give a rating on the location of visit.

1) User must be able to provide a review on the location of visit.

- Favourites:

1)User must be logged in to use the favourites feature.

2)User must be able to bookmark a location.

   2a)User must be able to retrieve the list of bookmarked locations.

   2b)User must be able to remove a location from their bookmarked list.

Non-Functional Requirements

- Usability:

1) System should provide error message when the input is wrong

2) User should be able to access different page

3) System should need to adapt different size of the screen

- Reliability:

    1) System should be able to restore functionality within 5 minutes of system reboot

- Performance:

    1) System should detect the type of waste within 10 seconds

    2) System should provide the route to the recycling site within 10 seconds

- Security:

    1) System should keep the user account information safely in the database

    2) System should mask the password in the login page

- Compatibility

    1) System should be compatible with Google Chrome