RENIA-SCRAP MANAGEMENT USING ANDROID MOBILE APPLICATION

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Abstract - Scrap Collector RENIA is Android Mobile Application for door to door Free Scrap Collection and Recycling Service. Scrap Collector Provides different Sectors which include Individual House, Society, Organizations and Industries. Give away your recyclables used paper, plastic, metal, glass etc., in a most environment friendly manner .Scrap collector brings transparency to the age-old ways of waste paper collection. We have introduced the use of electronic weighing scales at the doorsteps of clients. Our First Priority at scrap collector is Customer Satisfaction which we try to achieve by giving the Best Price, Accurate Weight (Electronic Weighting Machine) and 100% assurance of Recycling the Scrap Material Provided by our Customers. We purchase waste paper of all kinds at a fair price, including newspapers, notebooks, magazines, steel, brass, glass, iron, plastic, etc., Guarted to peek a scrap within 24 hours. We make use of technology in the whole process of collecting waste. Give away your recyclables used paper, plastic, metal, glass etc., in a most environment friendly manner. We have a centralized call center, and our mobile workforce uses tablet PCs for submitting their transactions. This enables trust among common people. We also take waste collection bookings through text messages

***Key Words*:** Android Studio, Android SDK, XML, Google Firebase, Android Mobile Application**.**

1. INTRODUCTION

Scrap collector RENIA brings transparency to the age-old ways of waste paper collection. We have introduced the use of electronic weighing scales at the doorsteps of clients. Our First Priority at scrap collector is Customer Satisfaction which we try to achieve by giving the Best Price, Accurate Weight (Electronic Weighting Machine) and 100% assurance of Recycling the Scrap Material Provided by our Customers. We purchase waste paper of all kinds at a fair price, including newspapers, notebooks, magazines, steel, brass, glass, iron, plastic, etc. We make use of technology in the whole process of collecting waste. Give away your recyclables used paper, plastic, metal, glass etc., in a most environment friendly manner.

This paper describes the scrap yard disposal and the removal of unwanted scrap materials from an industry. Scrap consists of recyclable materials left over from product manufacturing and consumption, such as used parts of vehicles, to recycle and to produce re- usability to the scrap materials and also consists of building supplies from the industry and other surplus materials as well. Scrap disposal results in significant monetary value and benefits the industry by increasing profits. Scrap metal originates both in business and residential environments. Typically, a "scrapper" will advertise their services to conveniently remove scrap metal from the organization and dispose it to help recycling of those materials. Scrap is often taken to a wrecking yard (also known as a scrap yard), where it is processed for later reforming and melting the unwanted scrap into new products. Many scrap yards also sell bulk metals (stainless steel, etc.) by weight. This is often done at prices that are substantially below the retail purchasing costs of similar scrap products.

"Android platform was built from the ground up with the explicit goal to be the first free platform, open and complete platform created specifically for mobile devices."

2. HARDWARE REQUIREMENT:

- 64-bit Microsoft® Windows® 8/10.

- x86_64 CPU architecture;

- 2nd generation Intel Core or newer

- 8 GB RAM or more.

- 8 GB of available disk space minimum (IDE + Android S DK + Android Emulator)

- 1280 x 800 minimum screen resolution

3. SOFTWARE REQUIREMENT:

- **Android studio:**
  Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains' Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development

- **SQLite/ Google fire base**

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment.

4. LITERATURE REVIEW

OTP Authentication:

Many apps require their users to be authenticated. So for the purpose of authenticating the apps uses phone number authentication inside their apps. In phone authentication, the user has to verify his identity with his phone number. Inside the app user has to enter his phone number after that he will receive a verification code on his mobile number. He has to enter that verification code and verify his identity. So this is how phone authentication works. Firebase provides so many ways for authentication users such as Google, Email and Password, Phone, and many more. In this article, we will take a look at the implementation of Phone Authentication inside our App using Firebase. Firebase is a mobile platform that helps you quickly develop high-quality apps, grow your user base, and earn more money. Firebase is made up of complementary features that you can mix-and-match to fit your needs, with Google Analytics for Firebase at the core.

Register/Sign in:

Registration form in Android is part of every application out there. So, when we are programming, we work with many registration forms. Forms can be very different from a simple login or registration to a complex ordering form for a mobile store. With registration, we explain how you can check data that the user has entered with simple validation. Validation can check many conditions. In this example, we verify if an mobile number, email id is a valid email and if a user entered all the required data, for instance, we check if Edit Text is empty for the first and last name. We have prepared a way to notify the user that the data is not valid. On login activity, we show how to check if a password is long enough.

Map Implementation:

Android allows us to integrate Google maps in our application. You can show any location on the map, or can show different routes on the map etc., You can also customize the map according to your choices. The Google cloud SDK describes how to store your API key so that it can be securely referenced by the app. You should not check your API key into your version control system, so we recommend storing it in the local properties file, which is located in the root directory of the project.

Firebase:

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web app. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment. Firebase is a mobile platform that helps you quickly develop high-quality apps, grow your user base, and earn more money. Firebase is made up of complementary features that you can mix-and-match to fit your needs, with Google Analytics for Firebase at the core.

5. LIST OF MODULES:

Our proposed system is made up of these following.

Module 1: User verification

Module 2: Scrap material selection.

Module 3: Scrap pickup request

Module 4: Map Implementation

Module 5: Mode of payment

MODULE 1: USER VERIFICATION

We will be building a simple application in which we will be displaying a simple user registration and login form. After user registration, we will be sending a verification link to

our user's mobile number to verify the user's mobile number. The One Time Password will be generated by the Google firebase and it will be sent to the user's mobile number by an SMS.

MODULE 2: SCRAP MATERIAL SELECTION

Once the user completes the user verification and registration, the user will be able to select different types of scrap materials from the list of options mentioned in our Renia Scrap application.

Fig.1 Scrap list

MODULE 3: SCRAP PICKUP REQUEST

When the user completes the Scrap material selection process, the user can raise a pick up request to collect the scrap from the customer. The scrap collector will receive a notification and he will be assigned to collect the scrap the particular customer.

MODULE 4: MAP IMPLEMENTATION

When the scrap collector accepts the request, the user can track the location of the scrap collector and view the path till the scrap collector reaches the customer's destination.
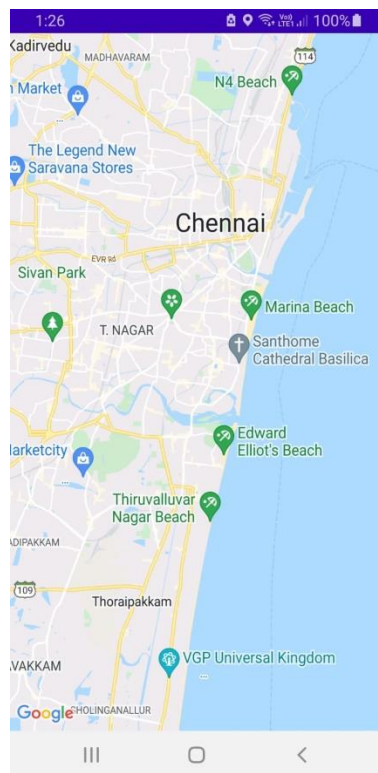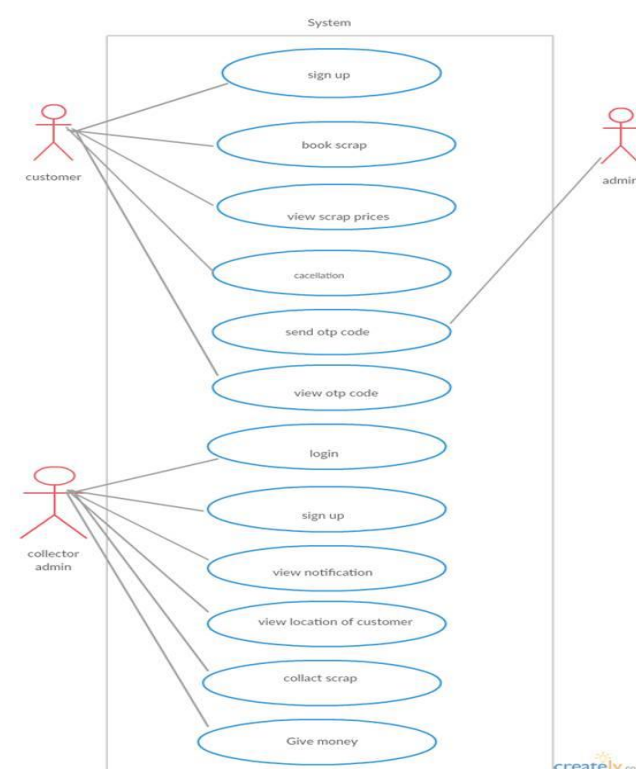

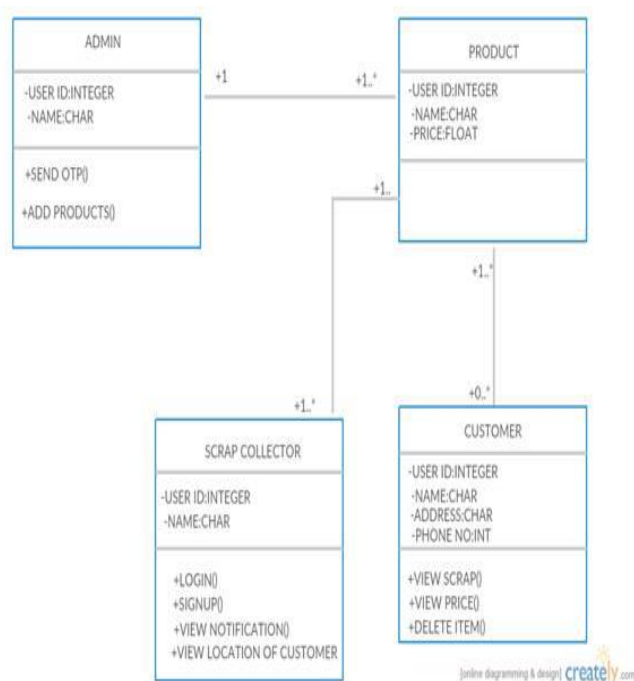Fig.2 Map implementation

MODULE 5: MODE OF PAYMENT

After measuring all the scrap, the bill will be generated using some calculation based on the scrap and the customer will be paid either by cash or UPI payment.

6. IMPLEMENTATION:

USE CASE DIAGRAM:

CLASS DIAGRAM:

ARCHITECTURE DIAGRAM:

7. SYSTEM OVERVIEW

Problem Statement

The main objective of this system is to develop an android app which has the application level cache implemented in it and integrate the app with the website built using the Android Studio software and connect it to the Google firebase database. Android Studio

have many modules which can be included in the website as per users need and have very complex framework for the website.

About Renia Scrap Management

In Renia Scrap app we have introduced the use of electronic weighing scales at the doorsteps of clients. Our First Priority at scrap collector is Customer Satisfaction which we try to achieve by giving the Best Price, Accurate Weight (Electronic Weighting Machine) and 100% assurance of Recycling the Scrap Material Provided by our Customers. We purchase waste paper of all kinds at a fair price, including newspapers, notebooks, magazines, steel, brass, glass, iron, plastic, etc. We make use of technology in the whole process of collecting waste. Give away your recyclables used paper, plastic, metal, glass etc., in a most environment friendly manner.
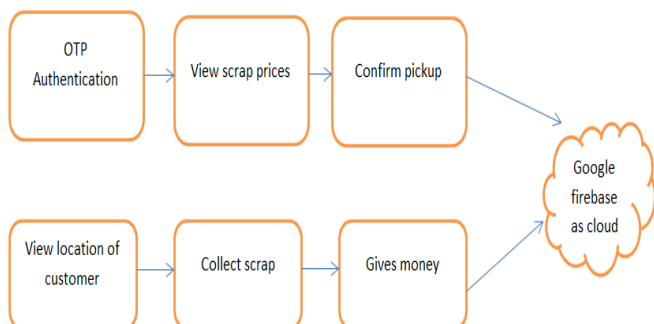
Pros & Cons of Renia App

1. **Pros**

- It can be easily installed & customized
- It offers an intuitive & user-friendly dashboard
- It takes few minutes to install the software
- It creates the database tables automatically

2. **Cons**

- It lacks graphic customization as there is not much you can do with it
- It has limitations with its templates, themes & modules
- It has compatibility issues with some systems
- It does not have official support team
- It supports only English language

Objectives of the system

1. To develop the Scarp Management RENIA Android App.
2. Integrate the Android App with Android software.
3. Create the connections between the App and the Google firebase.
4. Design the GUI of the App for different devices
5. Design the attractive theme for the App

8.SYSTEM ANALYSIS:

The three factors can be considered while evaluating the quality of Android Studio as follows:

1. **Usability**: **-** it refers to qualities that empower electronic trade to be helpful in a variety of circumstances, through its own improvement procedure, as well as the utilization and support, and depends on the unwavering quality of the site and comprises of the accompanying two angles;

Conceptual Reliability: It manages the potential outcomes of electronic trade to acceptably execute what was indicated and planned.

Representative reliability : It refers to the agent potential outcomes of electronic trade that influence the comprehension and treatment of the store through its life cycle.

Utilizing these variables, the investigation of the site and web application can be completed. It is then conceivable to figure out which of these elements that have been contrasted is suitable with utilize. The examination of the devices depends on the above variables and on their legitimate working to give the clients most extreme help and the utilization of the instruments. The online store can be tried for the client perspective and the managerial perspective, including enlistment, web page route and submitting a request for the items in the Renia app.

To assess the general execution of the web application amid execution of its usefulness, the accompanying three measurements can be considered, where bring down qualities show better execution.

1. **Response time:** the time in seconds(s) that the web application takes from the earliest starting point of its execution to the finish of stacking the whole site page content.

2 . CPU time: the time in seconds(s) that the way toward survey the site page possessed the CPU resource. Since the CPU may perform different tasks while stacking a website page, this metric separates the time taken just by the application being assessed.

3 Memory usage: the volume in megabytes(MB) that the way toward showing the page utilized as a part of the RAM of the execution condition.

The graphs below show the performance analysis of the web app for different android versions and different android emulator settings for memory usage and CPU time.

By implementing the application level cache in the project, we are trying to improve the performance of the android app in terms of response time to communicate the app with the web server to retrieve data from the server to the device over the internet.

9. CONCLUSION

RENIA is an Android application for door to door Free Scrap Collection and Recycling Service.

RENIA Provides different Sectors which include Individual House, Society, Organizations and Industries.
Give away your recyclables used paper, plastic, metal, glass etc., Give away your recyclables used paper, plastic, metal, glass etc., in a most environment friendly manner.

In this application scrap collector will comes to our lives and collect the scrap. Here we don't have to wait for scrap collector or we don't need to go for sell the scrap. Here scrap collector comes when we call them according to our convenience and collect all the scrap and give money at that time.

10. FUTURE ENHANCEMENT:

This proposed methodology of the scrap yard application is developed to provide the industry and its management to access its customers in a single touch, anywhere, anytime. With the help of this application created the company can develop and produce different ways to dispose the unwanted scrap materials from the organization. In future, this application can also include a communication interface between the customer and the industry using the application itself and can also deal with the billing and money transaction process for the scrap yard business.

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