Computer Vision & Mobile Application Development

Semester Project Proposal

'Airtime Recharge Application.'

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Android App to Recharge Airtime

Introduction

Topup airtime scanner is an Android app that utilizes computer vision technology to read text from a recharge card and recharge airtime. The application aims to provide users with a seamless and convenient way to recharge their mobile phones without the need to manually enter the recharge code. By using computer vision technology, the app will simplify the recharge process, saving users time and effort.

Problem Statement

The traditional method of recharging airtime requires users to manually enter a long recharge code, which can be time-consuming and error-prone. The app aims to solve this problem by using computer vision technology to read the recharge code from the recharge card automatically. This will save users time and eliminate the possibility of errors during the recharge process.

Objectives

The project aims to achieve the following objectives:

- Developing an application that can detect and recognize text from images accurately and efficiently.
- Creating a user-friendly interface that allows users to easily scan recharge cards using their smartphone camera and recharge their airtime.
- Implementing computer vision techniques to enable the application to recognize different types of recharge cards, even those with complex designs.
- To provide users with a seamless and convenient way to recharge their airtime.

Project Scope

The project scope includes developing a mobile application that can recognize and extract the recharge code from recharge cards by utilizing computer vision techniques. The scope of the project also includes developing a user-friendly interface that enables users to scan recharge cards easily and recharge their airtime quickly.

Methodology

The project will be developed using the following methodology:

- **Research and Analysis:** The project team will conduct thorough research and analysis of existing recharge apps and identify the best practices and features to incorporate into the app.
- **Design:** The app's user interface and design will be created to ensure it is user-friendly, intuitive, and easy to navigate. The design will include features such as recharge card scanning, information extraction, and airtime recharge.
- **Development:** The application will be developed using 'Kotlin' programming language, and 'ML Kit' libraries to process the images and extract relevant text information.
- **Testing:** The application will undergo rigorous testing to ensure that it meets the project requirements and is bug-free. Testing will include functional testing, usability testing, and performance testing.

Resources/Tools

- IDE: Android Studio.
- ML Kit, CameraX, and other libraries for computer vision in Android for text and image processing.
- Android device for testing and deployment.
- Kotlin programming language for Android development.
- Gradle build system for managing dependencies and building applications.

Learning Touchpoints

- Kotlin-based application development for Android.
- Computer vision techniques for text recognition, image processing, analysis, and interpretation.
- ML Kit for text recognition and CameraX for the camera functionality.
- Hands-on experience in mobile app development, designing and developing user-friendly apps.

Expected Outcome

The project will deliver the following:

- A functional mobile application that uses computer vision technology to extract the recharge code from the recharge card and recharge airtime.
- An intuitive and user-friendly interface that includes features such as recharge card scanning and airtime recharge.
- A bug-free application that performs optimally.
- Rigorous testing to ensure that the application meets the project requirements.

Conclusion

The Android app using computer vision to topup airtime project offers an innovative solution to the challenge of topping up airtime on mobile devices. The app leverages Google's ML Kit and Kotlin programming language to extract airtime voucher codes using the device's camera and automatically top up the user's account. The project's implementation has taken into consideration the user's needs, as the app offers a user-friendly interface, seamless navigation, and error-handling capabilities. Overall, the Android app using computer vision to top-up airtime is an essential tool for anyone who wants a hassle-free, efficient, and convenient way to topup their mobile airtime.