Be My Eyes: An Audio Assistant App for Visual Impaired People

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Abstract- *The human face is an important part of an individual's body and it especially plays an important role in knowing an individual's mood. Extracting the required input from the human face can now be done directly using a camera. This input can then be used in many ways. One of the applications of this input can be for extracting the information to deduce the mood of an individual. This data can then be used to get a list of songs that comply with the "mood" derived from the input provided earlier. This eliminates the time-consuming task of humanly grouping songs into various lists and helps in generating user based playlist based on person's emotional features. Various algorithms have been developed and proposed for automating the playlist generation process. Facial Expression detector detects the mood and plays music. In this Music Player aims at reading the mood by scanning and understanding the data and based on this data the playlist is created. The scanning and interpreting includes audio feature extraction and classification to get a list of songs belonging to a similar genre or to get a list of similar sounding songs.*

Keywords- Gestures control, improve accessibility of touch screen devise for visual impaired people.

I. INTRODUCTION

Do you know there are 90,45,14,000 cell phone users in India. And with population of India being close to 1.2 billion we can easily calculate that more than 74% population in India use mobile phones. But in today's ever changing World it is more advantageous to have a smartphone then just a normal mobile.

Advantages of using android devices:

Saves Time:

One of the biggest advantages of smartphones without a doubt is that it helps save a lot of your time. Smartphones are like small computers and you can complete most of your computer work on the smartphone itself. You can view and edit Word, Excel, PowerPoint documents from your smartphone, check updates, edit photos and video without being a Photoshop expert.

Millons of apps:

Having a smartphone gives you access to millions of Apps available on Android's Play store, Apple Appstore and Windows App store. With plenty of options to choose from you have a option to cystomize tour phone as you want.

Apps instead of websites:

When you have a normal phone the only way you can access the internet is via the mobile browser. In old days it was fine but in today's world accessing a website in a browser can have its limitation especially if you are browsing a social media or e-Commerce website.

Website such as Facebook, Twitter, YouTube, Flipkart, and Amazon are available in the form of Mobile Apps. And since these website are available in the form of apps you can enjoy a better web experience.

Good for reading:

If you are a student or a spiritual reader then advantages of smartphones have grown a lot in the field of reading. All the current smartphones in the market have good pixel density that allows for rich reading experience. Smartphones are also available in different screen size ranging from a 3.5 inches smartphone to a 5 inches smartphone. The bigger the phone better is your reading experience.

Go hand-free:

One of the major advancement in smartphone technology has been its voice recognition system. Various voice recognition systems like Apple' Siri and Google's Google assistant have advanced so much over the past 3-4 years that they can now recognize many English words spoken in Indian accent. So go hands free, instead of typing, use your voice to send messages via whatsapp, search something on Google or even make a voice note (with Google keep) and save it.

Free calls and messaging:

3 – 4 years back when smartphones were not much popular most of us would recharge a sms pack that would give us the joy of sending a fixed number of messages for free, But with development of apps like WhatsApp, Hike, Snapchat all that has become a thing of past as you can now send free chat messages over the internet to other people who have a smartphone. Smartphone apps like WhatsApp and hike further allow you to make free voice and video phone calls anywhere in the World.

Wi-Fi:

New smartphone buyers hardly understand the meaning of Wi-Fi at first. But when they do they really can't live without it and search for free Wi-Fi spots. Wi-Fi technology is also used for Wi-Fi hotspot. Wi-Fi advantages of smartphones can also be extended to wireless printing.

Wireless sharing:

Advantages of smartphones also extend to the field of sharing because now you can share files wirelessly without the need of USB.For wireless sharing you can use storage apps like Dropbox, Google drive or Onedrive.
Eg – Assuming you have google drive app installed in your smartphone.

Upload the files you want to share or transfer in the Google drive app. Once files are stored in your Google Drive account you can access them anytime anywhere. In this case access it in your PC.

Maps and navigation:

Maps and Navigation apps are the best if you want to travel to a new place in your city. And the number of Navigation and Map applications are increasing year by year.

You can use standard Google Maps app to view maps, get direction from Point A to Point B, and see traffic in your city. Navigation apps also suggests the best routes and time taken to reach a particular destination.

Apps like Google Maps Engine, My Tracks and Waze can also come in handy. We can see there are several advantages of smartphones in this field too.

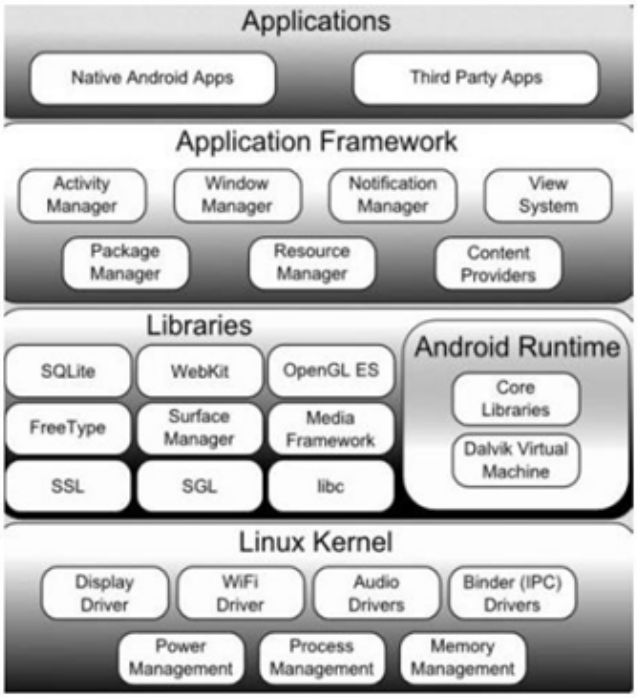
Explore your inner artist:

This is one of the advantages of smartphones in the field of creativity. Engineers are creative people but the only problem is that we do not exercise our creativity to our full potential.Apps like Pixlr Express, Repix, PicsArt can help you edit photo's like a Pro. Applications like AutoCad 360 can help mechanical engineering students with engineering drawing, app like SketchBook also come in handy. We can even download various educational apps to learn new skills or enhance your current skills.

Keep updated throughout the day:

Having a smartphone also keep you updates with all the day to day activities. After you wake up in the morning you can check what the weather is (on smartphone) even before stepping out of the house. Check traffic updates on Google Map. Go to college and if there is some important announcement post it on your Whatsapp or Facebook group and inform other people.

II. BACKGROUND



2.1. Android Operating System

Android is an operating system for mobiles developed by the Google Corporation. Android is a Linux kernel based operating system. The user interface of the android operating system is direct manipulation based. This was usually designed for touchscreen smartphones and tablets of all the operating systems in the market, Android holds the largest installed base. Android is a customizable, ready-made and low-cost operating system that can be used with high-tech devices and for this reason it is popular with technology

companies. Android is open source i.e changes can be made as per users demand and convenience and this encouraged a huge community of passionates and developers to use its code for developing community driven projects with which they can make changes and add additional features for advanced users.

2.2. Learning media

Learning media application presents content that aims to enable students to learn and refer programming concepts by themselves.

2.3. Interactive media

Interactive media refers to products and services on digital computer-based systems which respond to the user's actions by presenting content such as text, video, audio, etc.

III. ANDROID FRAMEWORK

The application framework can be understood easily if you know how things work and how they are arranged. Applications can be designed in a better way by knowing these two things. Since the android operating system is based on the Linux OS, it is very much similar to the Linux operating system. The architecture of android is illustrated in the following figure. Original Equipment Manufacturers (OEMs) provide the software stocks that are above the hardware. The applications are the topmost layer.

3.1. Applications

Applications like camera, music player, Application for making calls and so on are some of the apps. These applications can be from providers other than Google, Google doesn't necessarily provide these apps. By using the Google play store, you can develop an application and can place it there, making it available for all.

3.2. Android Framework

The application framework is used for developing applications. Developers for developing applications use the framework. The framework offers a number of interfaces and the developers of different standards use these interfaces. By using the frameworks you need not code every basic task.

3.3. Libraries

All the native libraries of android will be present in this layer. These libraries are written in C and C++. The capabilities of these libraries are similar to the application layer present on the topmost layer of the Linux kernel. Some of the major native libraries consist of the following. Surface Manager: It is the compositing window in manager and display. Media framework: It if the framework that consists of the codecs and audio, video formats.

3.4. Android Libraries

The Java libraries that are specific to the android development are present in this category. The application framework libraries are an example to this library. The application framework library serves as an additional package to other libraries that help in graphics drawing, user interface building and database access. Some of the core android libraries and their summaries are given below.

3.4.1. Android.app

Library is considered as the most important part for all the android applications and it also provides the required access to the application models.

3.4.2. Android.content

Publishing, content access and messaging in between apps and their components are supported by this library.

3.4.3. Android.os

The access to the standard OS services like system services, messages and interposes communication are provided to the applications by this library.

3.4.4. Android.text

Text can be rendered and manipulated using this library on a display device.

3.4.5. Android.view

The application user interface building blocks are provided by this library. These building blocks are the fundamental building blocks.

3.4.6. Android.widget

This library is a collection of UI components that are prebuilt. These include radio buttons, layout managers, list views, labels, buttons etc.

3.4.7. Android.webkit

This library consists of classes which are intended to allow the web browsing capabilities. These will be built into the apps.

These are the core Java-based libraries used in the android runtime

3.5. Android Runtime

The runtime of the android consists of the Dalvik Virtual Machine. This virtual machine is used for embedded devices and like any other virtual machine, this is also a bytecode interpreter. The virtual machines for the embedded systems have low memory. They are also slow and are run on battery. The Java libraries, which are core libraries, are also included in this and all the devices can use them.

3.6. Kernel

The Linux Kernel 2.6 is used for deriving the android operating system. It is compiled for the electronic equipment. The process Management and memory management are similar to the Linux operating system's process management and a memory management. Between the android software stack and the hardware, the kernel behaves like a hardware abstraction layer. The important hardware drivers like display, keypad, camera etc., are included in kernel and it provides generalization between the hardware to an extent.

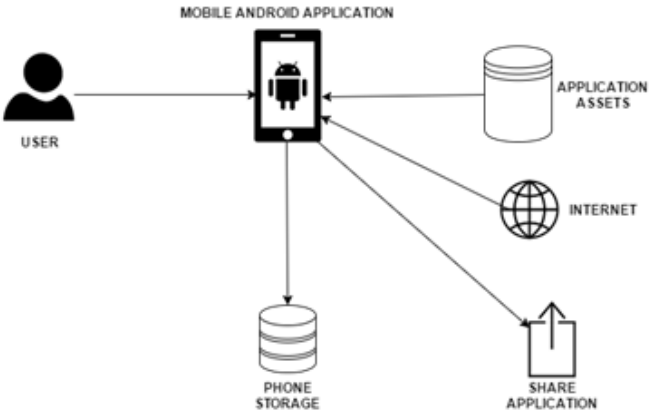
The kernel also handles things like a vast array of device drivers and networking. This will help in interfacing to the hardware (peripheral). To an android app, the important building blocks are the application components and these are a loosely coupled to AndroidManifest.xml, which is the application manifest file. This file describes every component of the application and it also tells you how they interact.

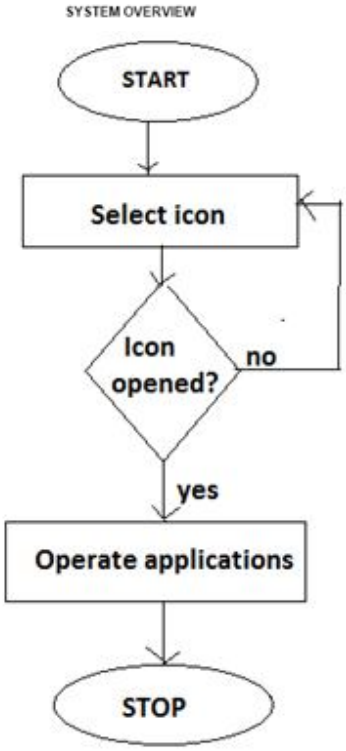
IV. APPLICATION USER INTERFACE

Application User Interface is coded in Extended Markup Language (xml) using the Android Integrated Development Environment (Android Studio). The UI components of

Application are stored in Resource directory in project's root directory, which is generated by Android Studio (IDE).

V. FLOWCHARTS





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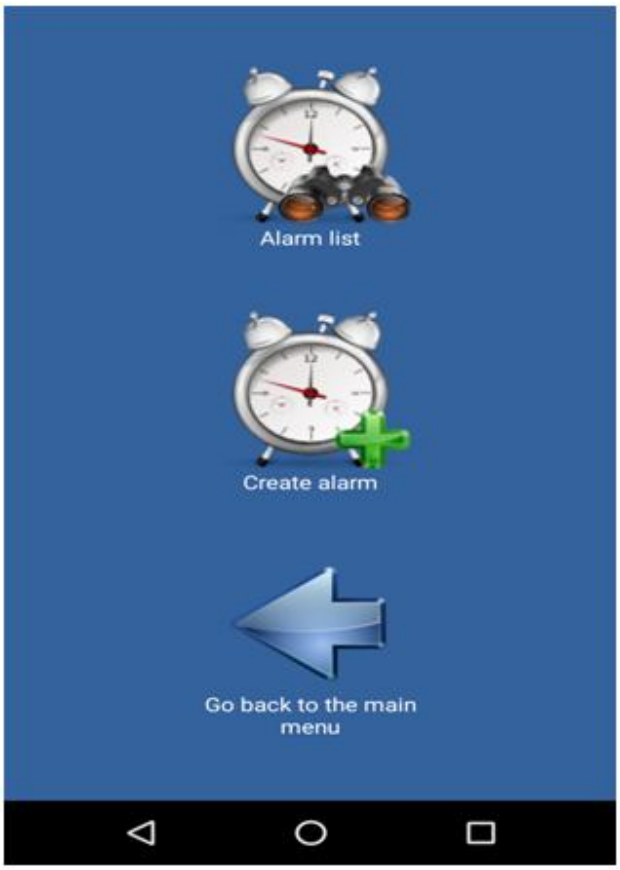
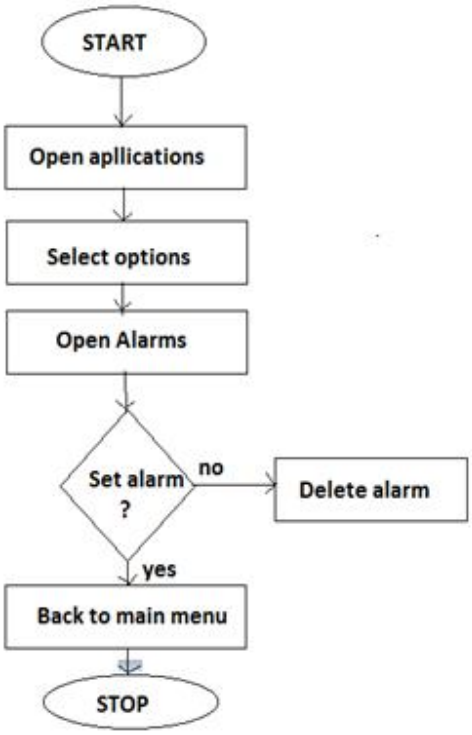
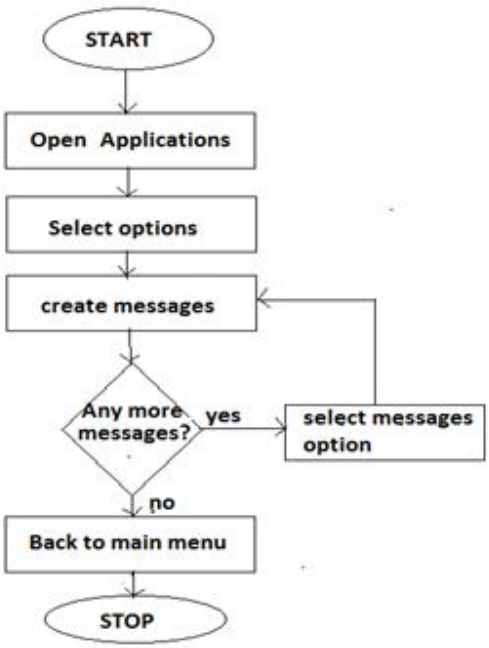


FOR SETTING ALARMS





FOR CREATING MESSAGE

The application is downloaded from Google Play Store and run on an android smartphone. Application provides a categorized view, wherein the user selects desired category of computer programs. On selecting desired program, the program is displayed on the user's screen, wherein user gets option to save that particular program to his smartphone's storage. The saved file is stored into user's phone storage in text format. Programs are pulled from the Assets directory of application. A class called AssetManager is used to load assets for the application, such as text files, graphics, etc. from the application's internal resource files into the application during runtime. The Share functionality of application is achieved using the ACTION_SEND event of an INTENT Class in Android. The ACTION_SEND event of an

INTENT Class is used to send some data from your smartphone to another smartphone through various medium provided by Android OS such as Bluetooth, Wi-Fi Direct, Social Media and Near Field Communication (NFC).

VI. FUTURE SCOPE

Voice could be extended to image attachments and other options such as indentation, fonts etc., that are available with normal E-Mail.

To improvise the accessibility setting of app to help the visually impaired.

VII. CONCLUSION

To improve the accessibility of touch screen devices for visually impaired

People, we proposed a new approach, an audio assistant.

So basically, the overall purpose of our application is to help the blind people with touch screen devices so at to some extent their life gets similar to sighted people.

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