VERONICA

VOICE ASSISTANT

SUBMITTED BY…

NIKHIL GAJANAN INGLE [11903531]

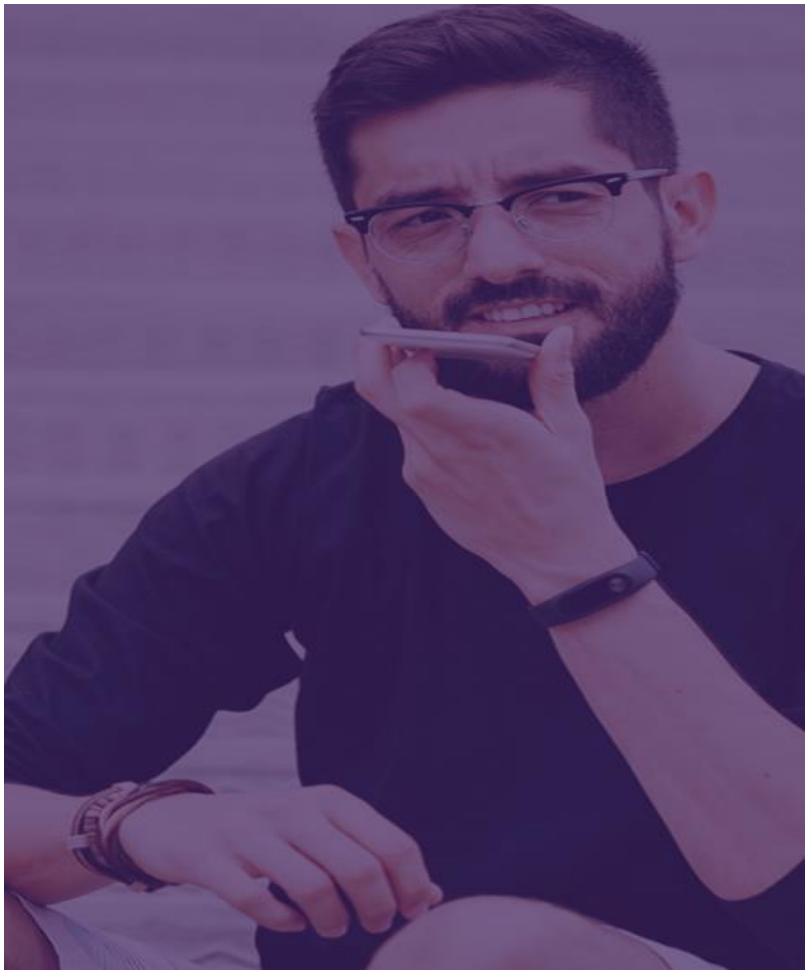
VIKAS CHAUBEY [11906626]

MARCH 31, 2020

VERONICA

VOICE ASSISTANT REPORT

Table of Contents



Abstract:

The Most famous application of iPhone is **"SIRI"** which helps the end user to communicate end user mobile with voice and it also responds to the voice commands of the user. Same kind of application is also developed by the Google that is "**Google Voice Search**" which is used for in Android Phones. But this Application mostly works with Internet Connections. But our Proposed System has capability to work with and without Internet Connectivity. It is named as **"VERONICA"**, which takes the user input in form of voice or text and process it and returns the output in various forms like action to be performed or the search result is dictated to the end user. In addition, this proposed system can change the way of interactions between end user and the mobile devices. The system is being designed in such a way that all the services provided by the mobile devices are accessible by the end user on the user's voice commands.

Keywords: SIRI, Google Voice Search, Mobile Device, Internet.

01]. Introduction:

Voice assistants are software agents that can interpret human speech and respond via synthesized voices. Users can ask their assistants questions. As voice assistants become more widely used, librarians will want to be familiar with their operation and perhaps consider them as a means to deliver library services and materials.

I]. Aim: -

Nowadays the Mobile Technology is being very famous for the User Experience, because it is very easy to access the applications and services from anywhere of your Geolocation.

II]. Motivation: -

Android, Apple, Windows, Blackberry, etc. are various famous and commonly used Mobile Operating Systems. All the Operating Systems provides plenty of applications and services for users. For an instance, the Contacts Applications is used to store the contact details of the user's contact and also helps user to connect a call or send an SMS to other person using the contents stored in this application. We can get similar types of application all around the world via Apple Store, Play Store, etc. All this feature gives birth to various kinds of sensors or functionalities to be implemented in the mobile devices.

III]. Achievement: -

The Most famous application of iPhone is “SIRI” which helps the end user to communicate end user to mobile with voice and it also responds to the voice commands of the user.

Same kind of application is also developed by the Google that is “Google Voice Search” which is used for in Android Phones. But this Application mostly works with Internet Connections. But our Proposed System has capability to work with and without Internet Connectivity. It’s named as Personal Assistant with Voice Recognition Intelligence, which takes the user input in form of voice or text and process it and returns the output in various forms like action to be performed or the search result is dictated to the end user.

02]. Literature Survey:

Speech recognition has a long history with several waves of major innovations. Speech recognition for dictation, search, and voice commands has become a standard feature on smartphones and wearable devices. Design of a compact large vocabulary speech recognition system that can run efficiently on mobile devices, accurately and with low latency.

This is achieved by using a CTCbased LSTM acoustic model which predicts context independent phones and is compressed to a tenth of its original size using a combination of SVD-based compression and quantization. Quantized Deep Neural Networks (DNNs) and on-the-fly language model rescoring to achieve real-time performance on modern smartphones. The ASR and Search components perform speech recognition and search tasks. In addition to ASR and Search, we also integrate a query parsing module between ASR and Search for a number of reasons. [3] Set of techniques for improving the performance of automated voice search services intended for mobile users accessing these services over a range of portable devices. Voice search is implemented as a two-stage search procedure where string candidates generated by an Automatic Speech Recognition (ASR) system are re-scored in order to identify the best matching entry from a potentially very large application specific database. Study provides a good example of how additional domain specific knowledge sources can be used with a domain independent ASR system to facilitate voice access to online search indices.

As more data becomes available for a given speech recognition task, the natural way to improve recognition accuracy is to train larger acoustic models. There are a nonparametric empirical model that exploits abundant training data to directly learn pronunciation variation. Interpolating the empirical model with a parametric model yields the best performance, with a relative improvement of 5.2% in WER over the baseline. [2] There are a number of ways in which this work could be extended. First, closer integration with acoustic model training is likely to yield sharper distributions and a tighter fit to the data. Second, estimating word pronunciation co-occurrence counts in semi-supervised fashion (e.g. through word recognition instead of forced alignment) would broaden its applicability to a wide range of speech genres and tasks.

03]. Related work:

This expansion of voice access is drawing more attention beyond the speaker and that is the intent of this report. We are looking at voice as a category distinct from programmatic visual interfaces on smartphones, smart watches and televisions. This report reflects the first comprehensive assessment of voice adoption across surfaces and includes

findings for smartphones, wireless headphones (hearables), smart speakers, cars, and appliances. We assess the varying levels of adoption, product maturity and consumer perception of performance improvements for a variety of use cases.

04]. Implementation:

I]. android.speech.RecognizerIntent: -

Constants for supporting speech recognition through starting an Intent.

II]. android.speech.SpeechRecognizer :-

This class provides access to the speech recognition service. This service allows access to the speech recognizer

Ill]. android.speech.tts.TextToSpeech : -

Synthesizes speech from text for immediate playback or to create a sound file.

IV]. android.view.Menu:-

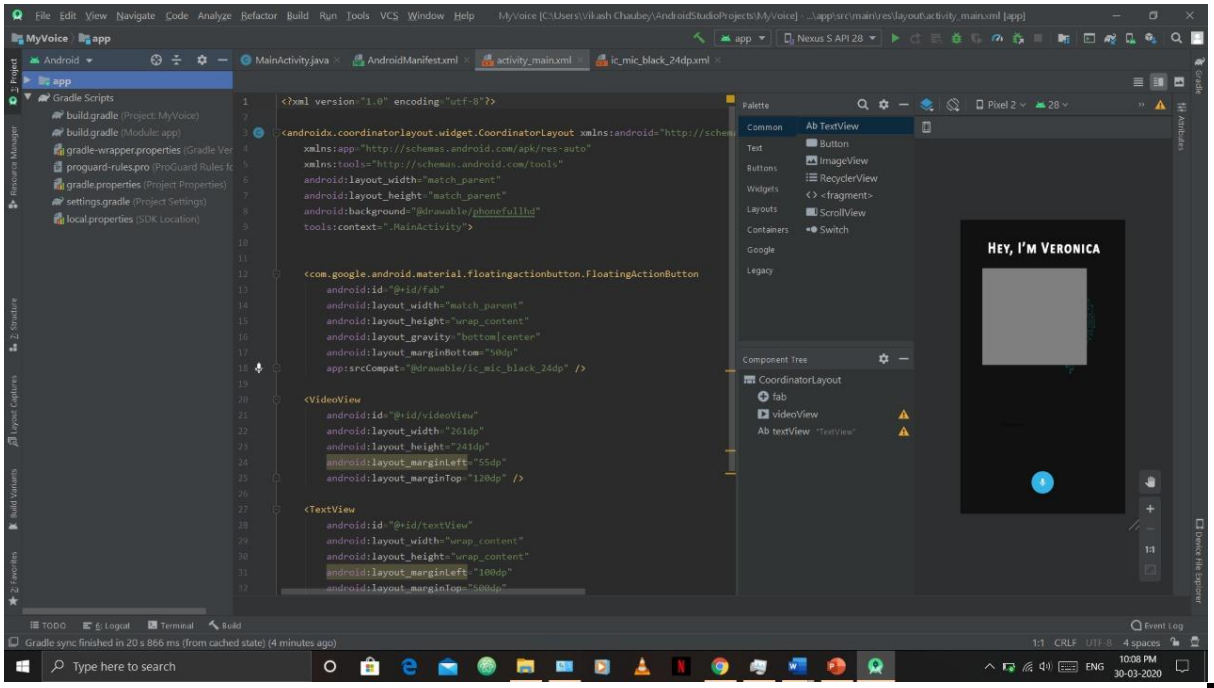
Interface for managing the items in a menu. By default, every Activity supports an options menu of actions or options. You can add items to this menu and handle clicks on your additions. The easiest way of adding menu items is inflating an XML file into the Menu via MenuInfator.

IV]. Android.widget.toast:-

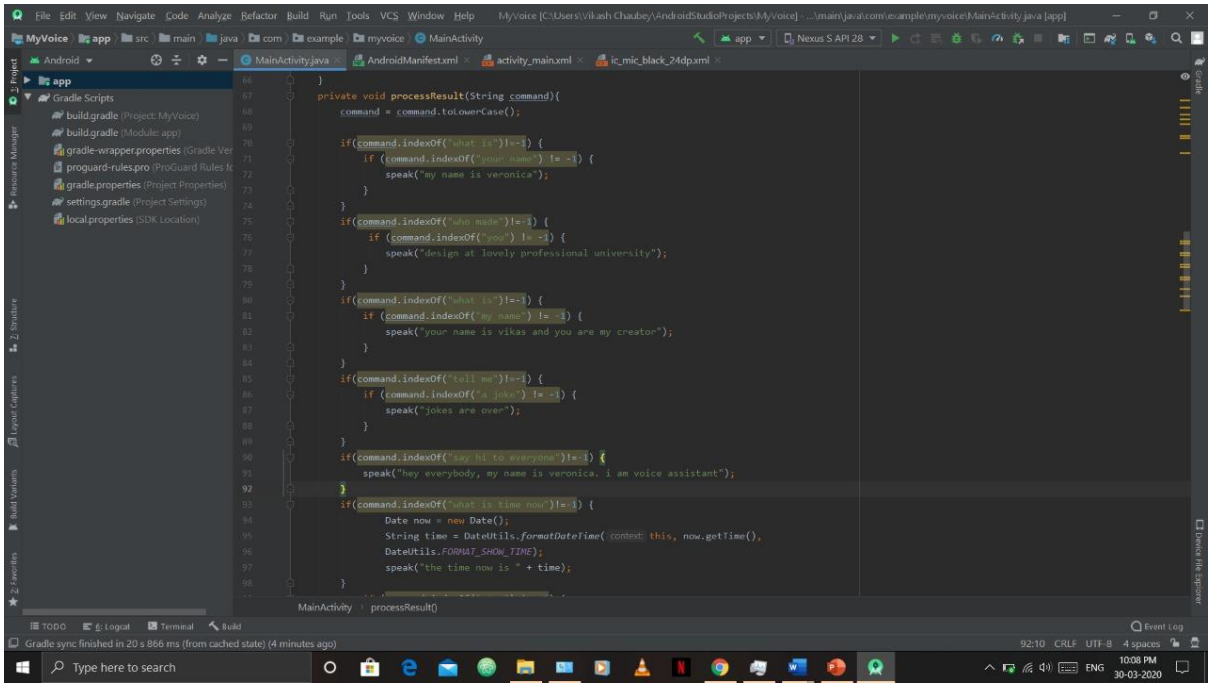
A toast is a view containing a quick little message for the user. The toast class helps you create and show those.

SCREENSHOT: - Application Interface

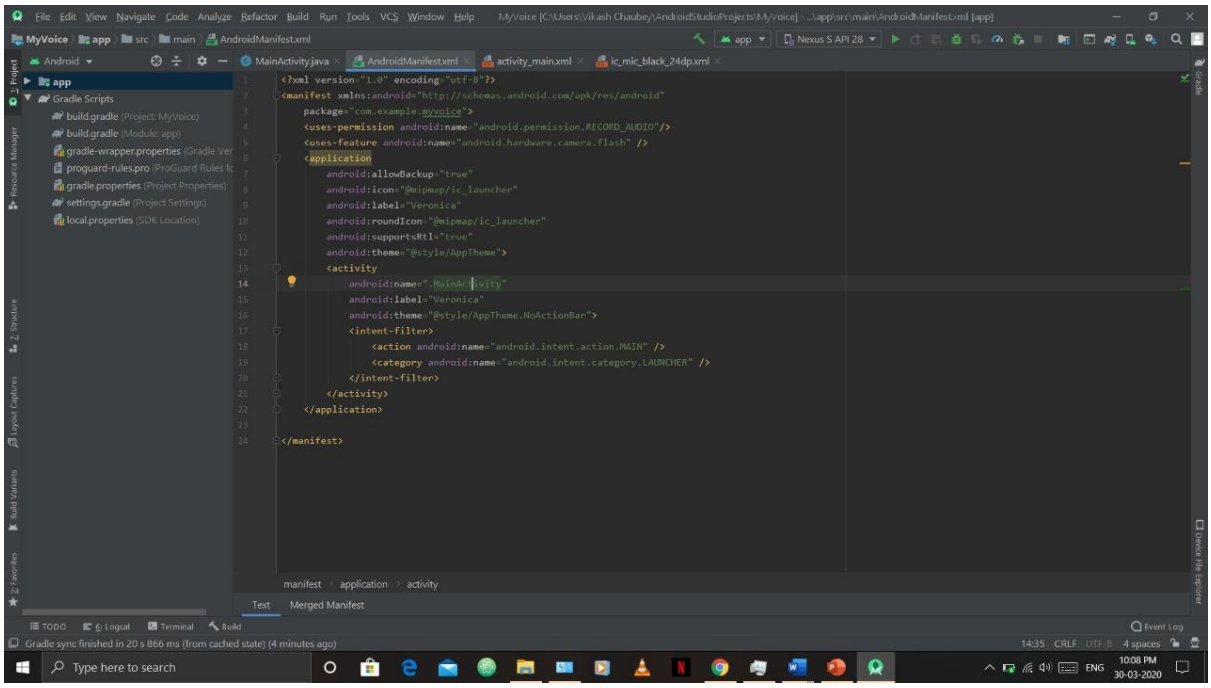
User Interface



COMMANDS:



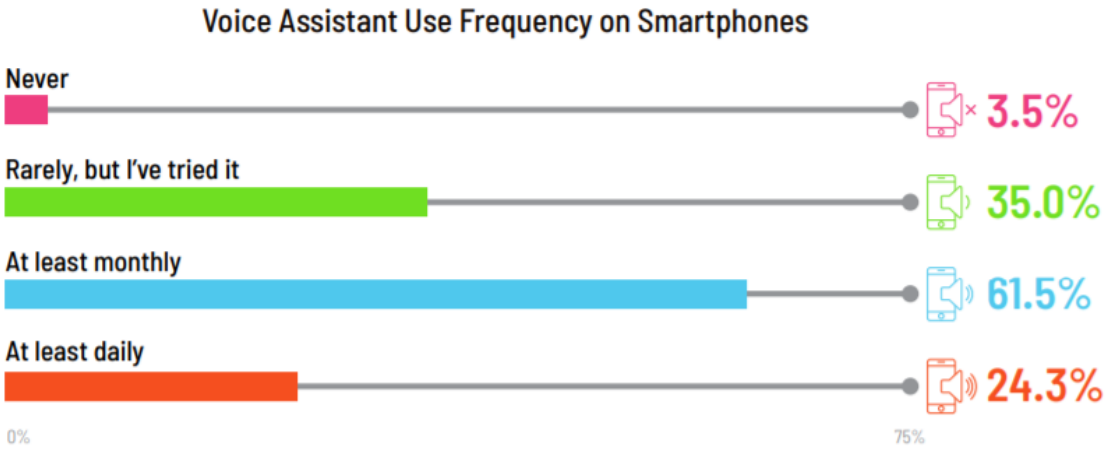
PERMISSION:



05]. Smartphones:

Nearly all smartphone owners, 96.5%, report having at least tried a voice assistant on mobile devices. More notable is that 61.5% have made voice assistant use on smartphones a monthly habit. Nearly one in four consumers reports using a voice assistant on their smartphone daily. Given the numbers, it is hard to view voice interaction as predominantly a smart speaker phenomenon. Widespread consumer use of voice started on smartphones and the majority use it on regular basis today.

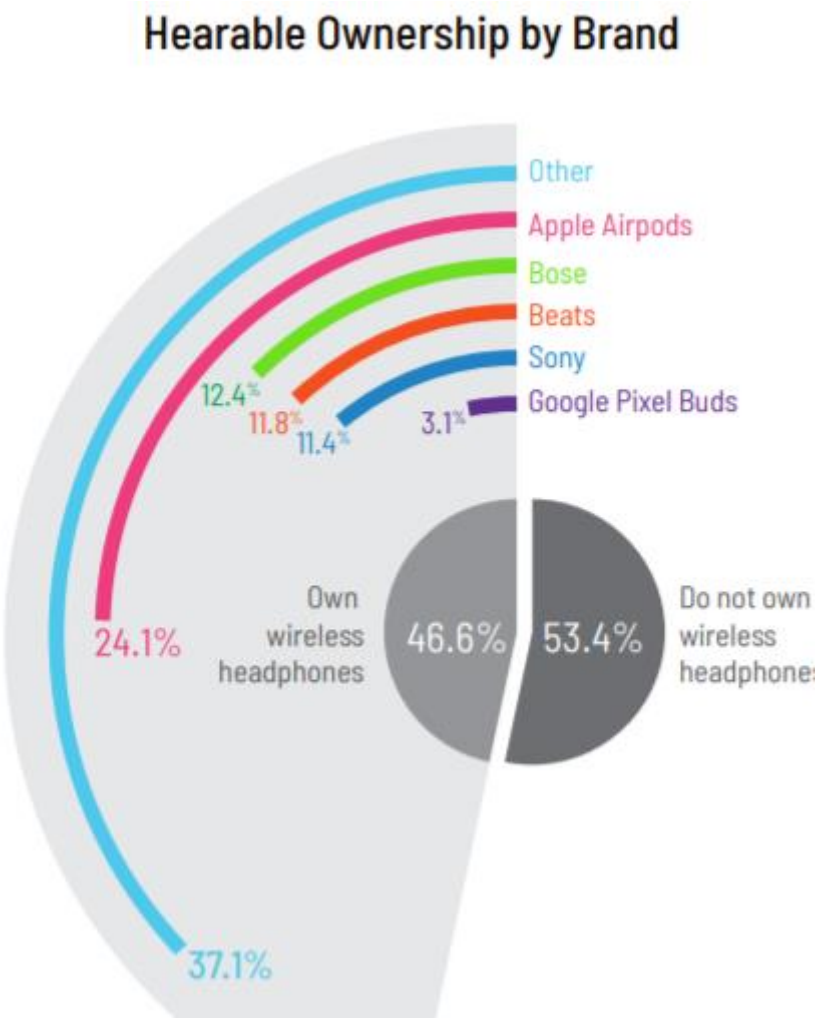
Fact: - 3 in 5 Consumers Use Voice Assistants on Smartphones at Least Monthly



06]. Hearable:

Nearly Half of Consumers Own Hearables Often viewed as an extension of smartphones, hearables are wireless headphones or earbuds that offer hands free access to a voice assistant with enhanced convenience and privacy. The expansion of hearables ownership will likely increase voice assistant use on personal devices that include smartphones and the

latest generation of smart watches. In this category, Apple AirPods are the breakout leader. While the market remains fragmented with the "Other" category capturing 37% of responses, AirPods have been adopted by 24% of hearable owners. Also note that Apple owns Beats. Most of those models provide Siri access so Apple's share of this segment is really 36%. Google's Pixel Buds trail far behind at only 3.1%. However, Bose and Sony offerings register at 12.4% and 11.4% respectively and both offer access to Google Assistant today in some models. It is important to note that not all wireless headphones have voice assistant access today. However, given the direction of product sellers, most of the 63% of branded wireless headphones already have or soon will have voice assistant access with a quick tap on their ear.



07]. Conclusion:

VERONICA is Designed to help Native and especially for Blind persons which works on their Voice Commands. VERONICA also has the capability of recognizing the voice commands without internet connection.

Hence, VERONICA is language barrier independent which actively responds to user's voice commands faster than the Online Voice Search applications.

08]. Additional Resources:

Consumers Believe Voice Assistants Are Improving

A consistent response across device surfaces is that consumers believe voice assistants have improved over the past two years. This sentiment is particularly important for smartphones and cars since voice on these surface's pre-date many of the modern advances in speech recognition. Those earlier generations of voice recognition could have soured users on voice in general despite its improvements.

But, 56% of consumers believe voice assistants on smartphones have improved and 51% have a similar belief about about in-car experiences. More significant, only 1.6% - 2.8% believe the capabilities have regressed and 20% - 24% have not noticed a difference.