ANDROID APPLICATION DEVELOPMENT TO IDENTIFY OBJECT USING TWITTER API AND GOOGLE VISION TECHNOLOGY IN ORDER TO PROTECT THE PRIVACY OF PEOPLE WITH LOW VISION

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ABSTRACT

The World Health Organization (WHO) reported that 285 million people worldwide have visual impairments (39 million people are blind and have low vision sight).The number of blind people and the evolution of technology to encourage researchers to introduce a solution to help the blind / visually impaired to usually practice their daily activity. On the other hand, social networking sites such as Facebook, Twitter, and Instagram, are widely used today and their users is growing rapidly. Social networking sites (SNSs) is a site that helps people communicate together in various ways through the Internet. The goal of this site is not only interact with each other and make new friends but also to gather information and get help from people who are known and share the experience with them.Mobile applications are merging technology Wordnik API is API search Engine and Google Cloud Vision through handpone with information system technology of search engine to describe the object and Google Cloud Vision to detect objek.Berdasarkan results can be the reason for the creation of applications that that helps identify objects and protect the privacy for visually impaired people with special needs by leveraging Google Cloud Vision Wordnik and Twitter.

Keywords: Google Cloud Vision, Mobile, Wordnik, Twitter, android.

1. Opening

1.1. Background

The World Health Organization (WHO) reported that 285 million people worldwide have visual impairments (39 million people are blind and have low vision sight) [1]. The number of blind people and the evolution of technology to encourage researchers to introduce a solution to help the blind / visually impaired to usually practice their daily activity. On the other hand, social networking sites such as Facebook, Twitter, and Instagram, are widely used today and their users is growing rapidly. Social networking sites (SNSs) is a site that helps people communicate together in various ways through the Internet. The goal of this site is not only interact with each other and make new friends but also to gather information and get help from people who are known and share the experience with them [2].

Blind People is someone who has obstacles in sight / no air-gsinya senses. Visually impaired themselves divided into several classifications to afford early the power of vision ie, mild visual impairments, visual impairments half the weight, datunanetra weight / total [3]. Based on the classification above is actually

some blind people can still look at a certain distance, but not fully see. Based on interviews with mild blind people named Agus Arifin age of 28 years and half the weight of the named Ali Solehudin age of 24 years using android smartphone, still find it difficult to perform daily activities to recognize certain objects and, is privacy. Very dangerous if blind people asked asked about the object that is privacy because it could undermine the privacy of blind people.

This study describes the incorporation of technology which is the Wordnik API API search Engine and Google Cloud Vision through handpone with information system technology of Search Engine to describe the object and Google Cloud Vision to detect the object.

Currently very popular Android operating system. According to research conducted by Net applicatons (www.kompas.com), the use of smartphones and tablets globally continues to increase in the next three months, ie 37.75 percent in April, 41.58 percent in May, and 43, 75 percent in the month of June 2014 [4]

Based on the above research into the reasons the creation of applications that helps identify objects and protect the privacy for visually impaired people with special needs by leveraging Google Cloud Vision, Wordnik and Twitter

"ANDROID APPLICATION DEVELOPMENT FOR PROTECTING PRIVACY IN IDENTIFYING OBJECT visually impaired API USE TWITTER AND GOOGLE VISION"

1.2. Identification of problems

From the above background, the identification of problems in this study are as follows:

1. Visually impaired have difficulty recognizing objects to be recognized
2. Visually impaired have trouble asking the object information
3. The lack of preparedness family and those closest to answering the question of the blind

1.3. Purpose and objectives

The purpose of this research is the development of android applications to protect the privacy of the visually impaired in recognizing objects utilizing fire twitter and google technology vision

1. To detect an object
2. To get information of the object in question
3. to Inform statistics from the time when the frequency of the

blind provide questions and what objects are ditaynakan

2. RESEARCH

2.1. Blind

Blind People is someone who has obstacles in sight / non-functioning of the senses of sight by the blind interference levels divided into two totally blind (Total Blind) and who still have some usable vision (Low Vision) [3].

2.2. Twitter API

At first the company which provides the facility Summize search for data on Twitter. Summize company later acquired and renamed to be the Twitter Search API brand apart as its own entity. API uses language that is more structured and easier to understand than the language system call. Twitter API consists of 3 (three) this part are:

1. **Search API**, Search API is designed to allow a user to manage dikonten Twitter search query. Users can use keywords to search tweets by specific or a more specific search tweets by Twitter username. Search API also provides access to the data Trending Topic.
2. **Representastional State Transfer**(REST) API. REST API allows developers to access core of Twitter like a timeline, status updates and user nformation. REST API is used in terms of building a Twitter application that requires a complex Yag core of Twitter.
3. **Steaming**FIRE. Streaming API use developer for more intensive needs such as doing research and analytics data. Streaming API to generate applications that can determine the status of the update

statistics, follwer and others. In this study, part of which used Twitter API is a REST API [5].

2.2 Google Vision

Google Cloud Vision is image recognition technology which allows to process the content online and to take its key features. By using a special REST API, called Google Cloud Vision API, Google Vision utilizes technology in the application. Computer Vision also referred to as image understanding is the discipline that studies how to reconstruct, interpret and understand the 3D scene from 2D image in terms of the nature - the nature of the structure of image data provided in a scene[6].

1. Object Detection from Image
   Detect objects comprehensive collection of images, ranging from flowers, animals, or transportation to thousands of other categories of objects commonly found in the picture.



Figure 1, Example Google Vision Detection Object Image

2. Power of the Web
   Vision API using technology Google Image Search to find topical entities such as celebrities, logo, or a news event. Combine this with the Visual Search Similar to find similar images on the web [11].

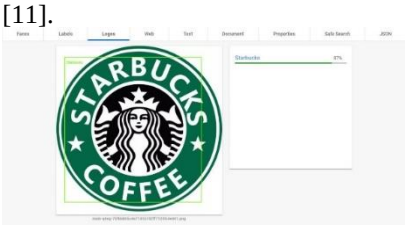


Figure 2, Example Google Vision power of the web

3. *extract Text*
   Optical Character Recognition(OCR) to detect text in the image, along with automatic language identification. API Vision supports a set of broad language [6].

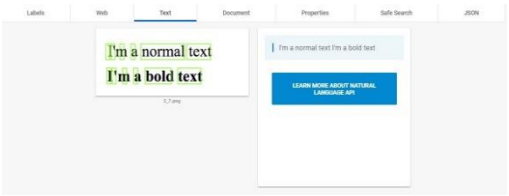


Figure 3, Google Vision Sample Extract Text

2.3 Could Google Translation API

Translate Google Cloud API can dynamically translate text between thousands of language. Could Translation API lets websites and programs to integrate with translation services programmatically. Google Translation API is part of a family of API Engineering Cloud larger Creator [7].

2.6 Analysis of The Current Situation

Analysis system is a phase that aims to understand the system, identifying system deficiencies, and determine the needs of the system to be built. By analyzing the system procedure then any system to be built can be evaluated so that it can be made a proposal to pemgembangan system or construction of a new system. Here is the procedure to get the object information for the visually impaired

1. Blind People ask people around about the object information that will be asked
2. If the person is aware of the object information then he will disclose the information of the object
3. Blind People get information from the object that has been asked
4. If the blind can not ask people about their privacy because of the constraints of the object is then not get the information.

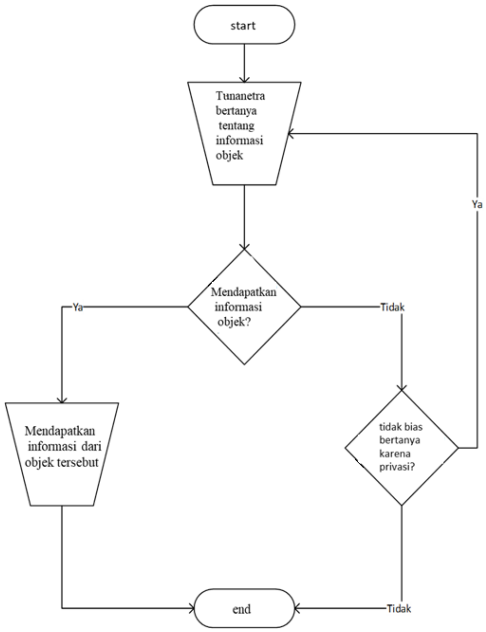


Figure 4. Flowchart system running

3.1.2 Similar Applications Analysis

In the analysis of similar applications, will be observed against the application that has similarities with the application to be built.

1. VizWiz

VizWiz an application for blind people to overcome the problems they faced in their daily activities (the ability to see the expired food products, recognizing the ATM ID, etc.). Therefore, they present an iPhone application called VizWiz that allow blind users to send images recorded with any questions about the object that was not known to the workers and then received a quick reply that is read by blind users convert text into speech. However, VizWiz not time-efficient solution as sometimes the picture is not clear, so the helper asking people blind to recapture his image, and repeat the process again. In fact, rescuers sometimes explain the contents of the image without having to listen to the question carefully, so that the blind will do so need to repeat the question again. In addition to a lack of available workers for some time in a day. Also, dangerous worker is considered one of the most limitations in this approach



Figure 5. Application VizWuz

2. LendAnEye

LendAnEye solusitirai proposed to introduce in their daily activation to identify the environment around them This is a mobile application that has two interfaces one for the volunteers and the other for low vision users. Users who do not mean to call the maid with a double click on the screen then a live video call is initiated, and the maid could communicate with the blind via video call continuously enhance the reality and a high response time, however, the privacy of blind people is not guaranteed because the maid anonymous privacy foreigners demand is not reached. It also requires the video call service which can be expensive for the majority of blind users in developing countries



Figure 6. Alikasi LendAnEye

2.7 Use Case

Used to model or describe the system constraints and its main functions. Describing the function of a system from a user perspective, the use case works by describing a typical interaction between the user of a system with its own system through a story of how the system sebauh used. Use case consists of three parts,

namely the identification of actors, identification of use cases and use case scenarios.

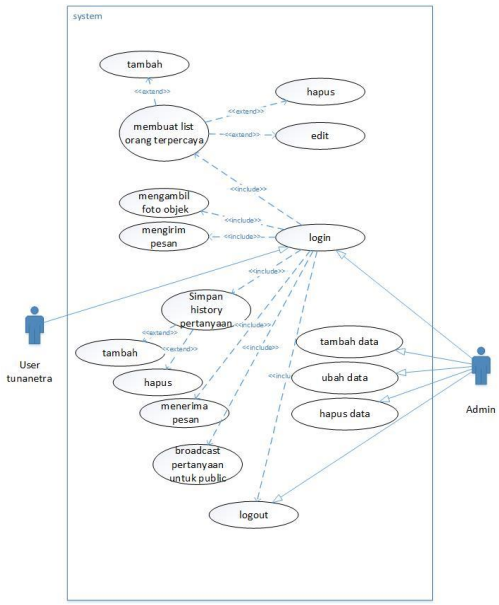


Figure 7. Use Case

2.9 Implementation and Application

Files contained in this application is wrapped into the shape file "Appsisten.apk" which will be uploaded in PlayStore, the following steps to run this application:

1. Open PlayStore in android.
2. Select the application Appsisten.
3. Click the download and wait a while.
4. When you have finished downloading click open.
5. When you come out to see this game, it indicates that the application is successfully installed and ready for use

2:10 Implementation Interface

Implementation of the interface is done by each program page is created in the form of program files. The following are the results of the implementation of the interface design has been made previously:

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Figure 8. login

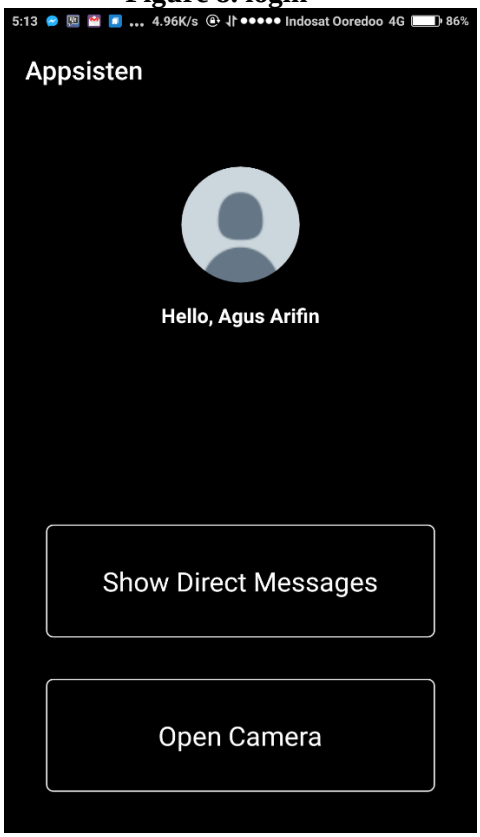


Figure 9.Home

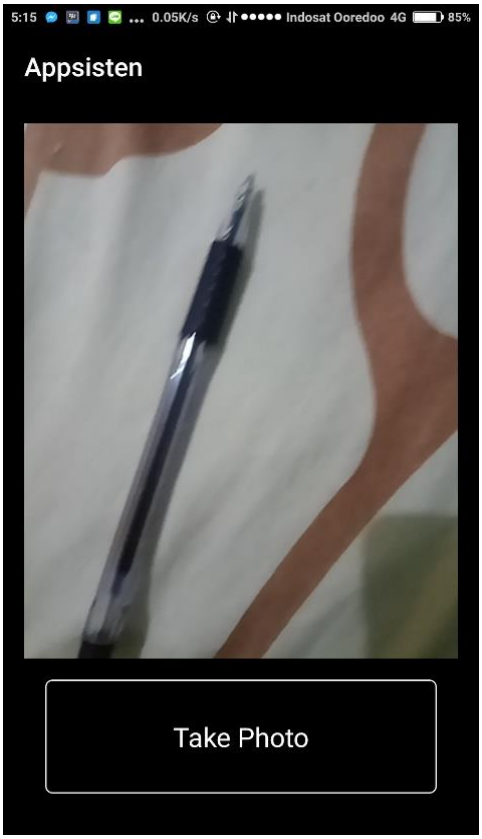


Figure 10. Camera

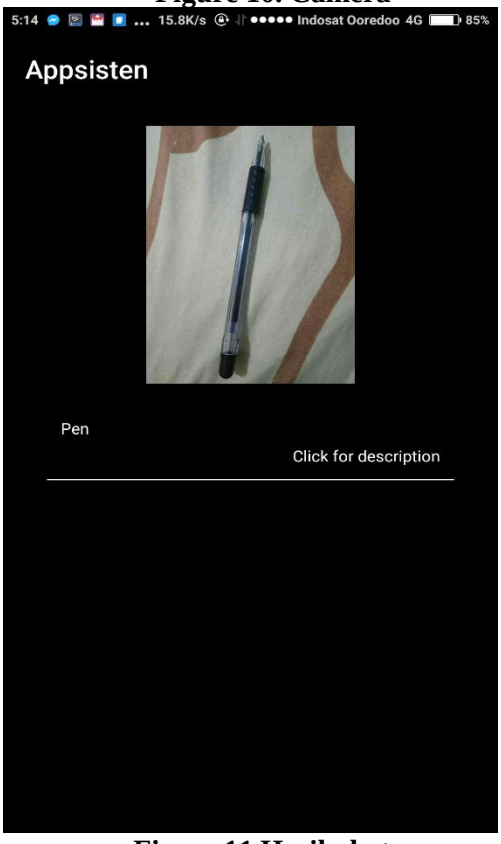


Figure 11.Hasil photo

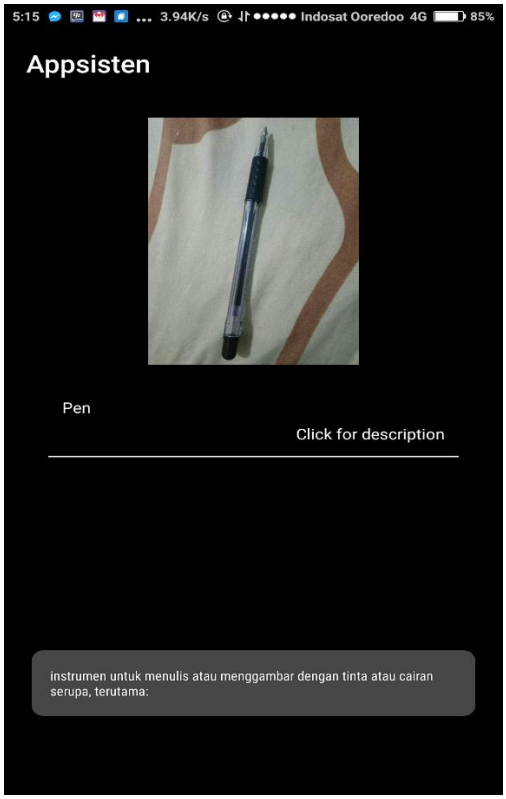


Figure 12.Deskripsi

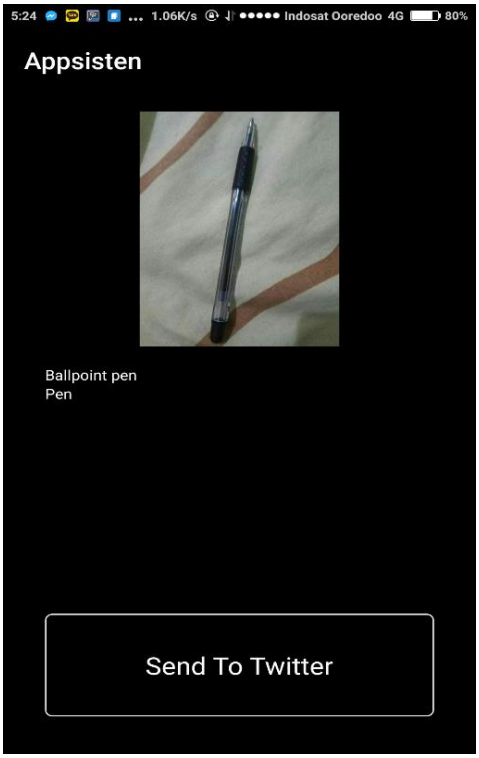


Figure 13. Interface send to twitter

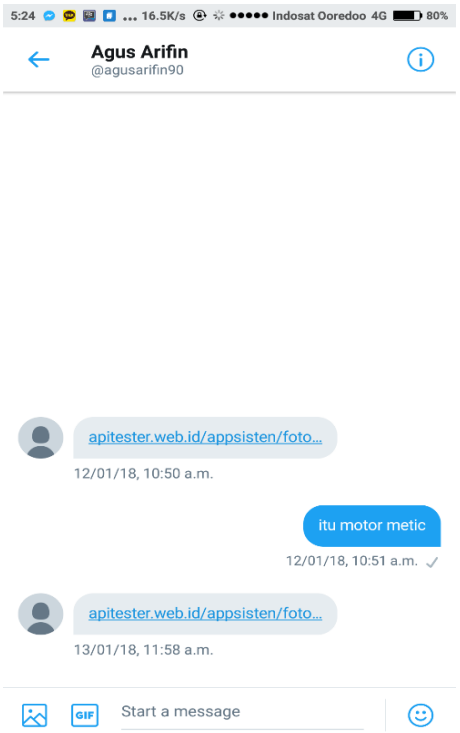


Figure 14. Interface inbox twitter

END

3.1 Conclusion

Based on the results of testing the functionality of the android based applications inimaka obtained the following conclusions:

1. This android application is already helping the blind to recognize the object to be photographed with the help of friends on twitter and voice output.
2. This application provides a description of the photographed
3. Closest friends and family can send messages with the answers of the object that was sent to clarify the answer to the application if the description of the object is not yet clear

3.2 advice

Applications built it still has some drawbacks. Therefore there are some suggestions that can be used as a guide to the development of applications to better direction again. As for suggestions that the development of this application is as follows

:

1. Use a smartphone with a good quality kemera
2. Change google voice sound clearer to Indonesia in order to spelling Indonesian
3. This application is not purely for privacy because they have to send objects that have been taken to twitter if the spelling of the description remains unclear

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