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Procedia Computer Science 50 (2015) 258 – 263

Procedia Computer Science

2nd International Symposium on Big Data and Cloud Computing (ISBCC'15)

Exporting files into cloud using gestures in hand held devices-An intelligent attempt.

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Abstract

The idea is to upload files into cloud using gestures. A "Gesture" is form of a movement of part of the body, especially a hand or head, to express an action. The gesture used here is a tilt of the device in hand. The type of the file to be uploaded into cloud can be of either a picture or a video. This is accomplished using an application similar to gallery. To perform the task, the application is invoked to view a picture or video, when the device is tilted from its actual viewing position towards its left twice within a span of two seconds, the gesture is recognised and the currently viewed file is uploaded into the cloud. The cloud service used for uploading is Dropbox. The size of a video files is generally large and uploading it will take time, so the video size is reduced through a compression algorithm. There is a buffer which tracks the uploading part and will see to that, that the entire video is uploaded into the cloud. Thus, through this application the file can be uploaded into cloud through a gesture easily and effectively.

Peer-review under responsibility of scientific committee of 2nd International Symposium on Big Data and Cloud Computing (ISBCC'15)

Keywords: Gesture;Upload;Cloud;Video Compression;Feasibility;

1. Introduction

Right now we're in the middle of a transition period. Our documents, photos, and videos are in between physical, locally-stored, and cloud-stored. Within the next few decades, all of our files will be in the cloud. Cloud storage offers a centralized location that can be accessed from anywhere, any time, and ideally from any device. This is already a huge improvement from local storage. Cloud storage differs from traditional storage infrastructures in regard to three key aspects: accessing files remotely over the network, accessing files on object-based storage, and the unique cost structure.

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doi:10.1016/j.procs.2015.04.051

As an inheritance and emergence of cloud computing and mobile computing, mobile cloud computing has been devised as a new phrase since 2009.Cloud storage provides geographically dispersed users with storage capacity managed from a central location. By definition, this entails storing data at a location different from where it was created or used.

With Android Surpassing One Billion Users Across all Devices in 2014(statistics from http://www.gartner.com/newsroom/id/2645115[1]), working with the majority is ideal. Data management on Android is easy but one can still find oneself low on empty space very quickly. After all, the device has finite space. When running out of space, one looks out for cloud services.

Traditional cloud uploads occurs through upload button. Since simple gestures denote the next gen in various products today we are trying to use that technique in our product. Today's Smartphone not only serves as the key computing and communication mobile device of choice, but it also comes with a rich set of embedded sensors, such as an accelerometer, digital compass, gyroscope, GPS, microphone and camera. So with the use of these advanced sensors we are accomplishing our target.

Thus we are uploading the file through the available sensors and sending it to the cloud. Usually the size of the video file will be large and uploading it might take time. Hence to be more efficient, video compression techniques will be incorporated in. Therefore the file will be loaded efficiently and easily.

2. Structure

MODULE 1:GESTURE RECOGNITION

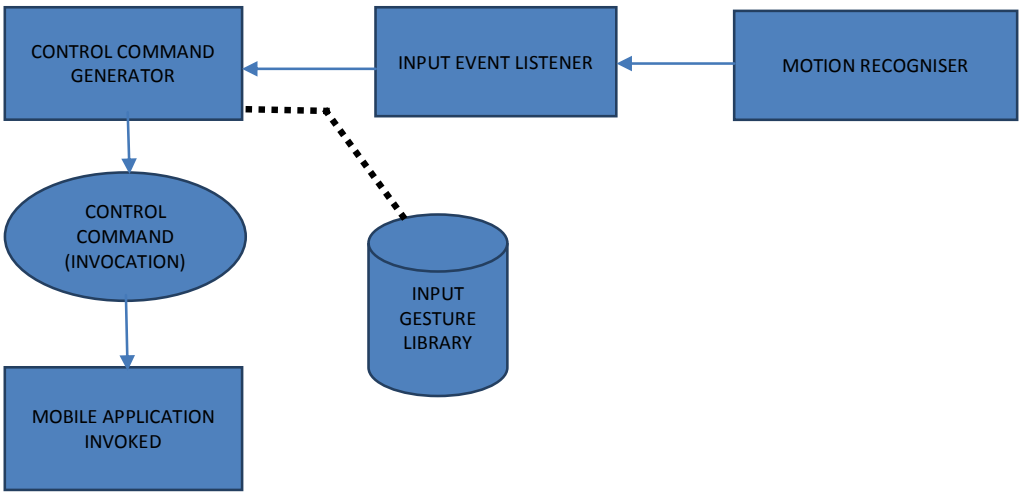

Fig 2.1 GESTURE RECOGNITION

Today touch less technology is at the peak. Everywhere people are expecting simplicity. So as to bring in simplicity gesture is implied here as in Fig 2.1. Gestures are recognised through sensors. There are various sensors available in smart phones. The sensor used here is gyro sensor. The input gesture given by the user is tilting of the hand held device. Once the tilt gesture is given (two consecutive tilts given within a total span of 2 seconds) the function assigned to it is invoked. [4] The function in this mobile application is cloud connection establishment and file uploading into the cloud.

MODULE 2: CLOUD CONNECTIVITY

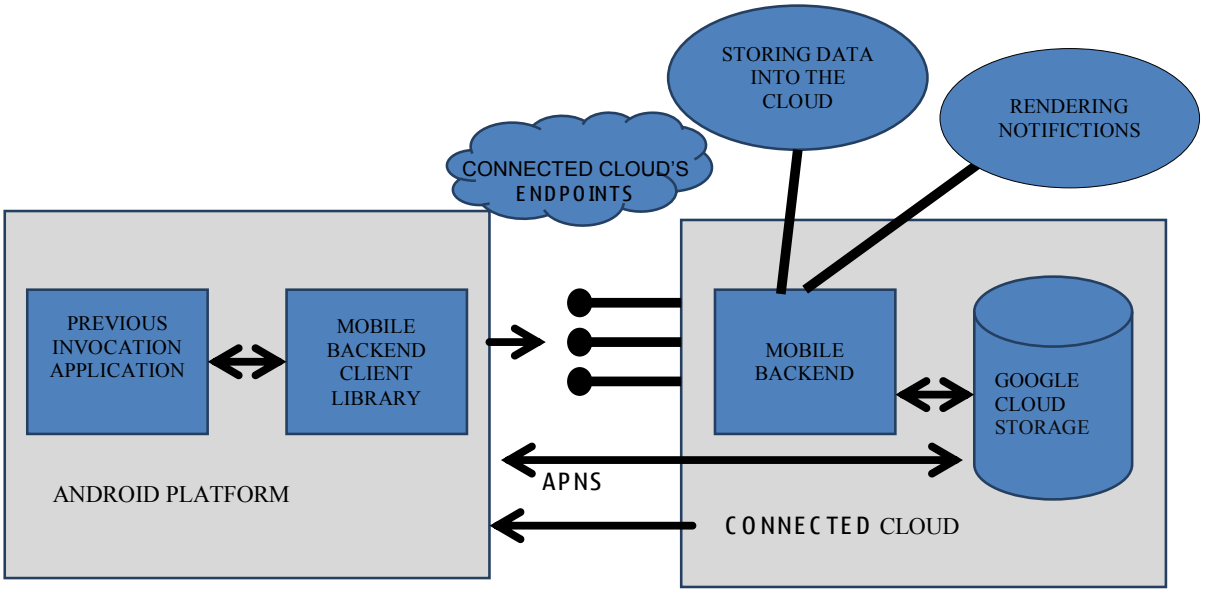

Fig 2.2 CLOUD CONNECTIVITY

There are various types of cloud services available for cloud storage purposes. These services have two use cases. The first is personal storage, or extending one's own file system to the cloud. The second is sharing, especially of moderately size to large documents. Sharing was looked at in both a one-to-one and group sharing, with people who had accounts on the service and those who did not.

Hence in this module, cloud connectivity is established [5]. Fig 2.2 shows how the mobile is connected to the cloud. Cloud connectivity is achieved through Application Programming Interface (API). There are different Application Programming Interface (API) are available for specific cloud services. The cloud storage service used is Dropbox. Dropbox is a file hosting service operated by Dropbox Inc. [2], which offers cloud storage, and is perhaps the most popular cloud storage and sync app around.

MODULE 3: UPLOADING FILES

When a gesture is recognised a connectivity is established and the currently viewing photo or video is uploaded into the cloud service.

To enable more efficiency and time consumption, compression technique is added in. FFMPEG [3] video compression is applied to compress the videos that is uploaded into the cloud. The compression ratio is 10:3 on an average. This ratio varies in accordance to the quality of the camera in which the video is recorded from.

FFMPEG is one of the best multi-encoding media tools available. It made portable to android by Faywong. This tool enables us to reduce the size of the video by encoding into acceptable quality. Comparing it with android's default 'Media Encoder', FFMPEG is faster with encoding the same video to the same encoding options. It also supports various options such as compressing any format of video. Hence if the developer wants to use it in the future or enable applications to choose quality options based on network speed or user preferences, it is possible.

3 .Illustrations

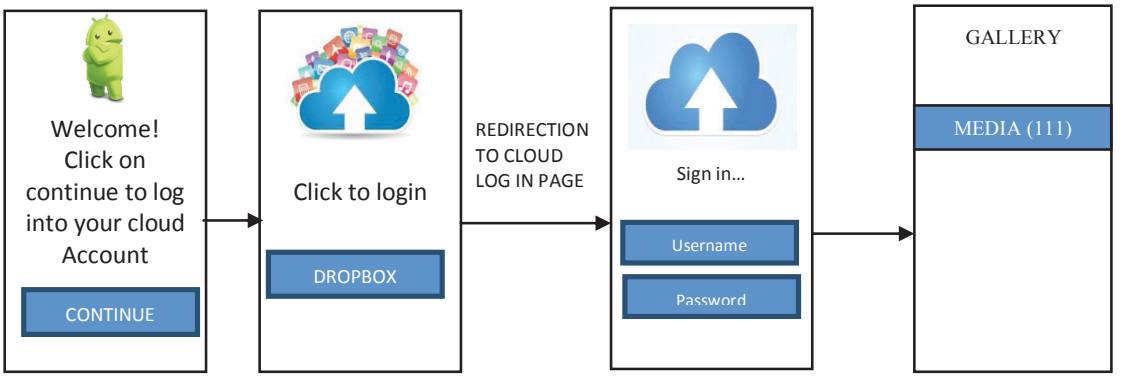

Fig 2.1. INITIALISATION OF THE APPLICATION

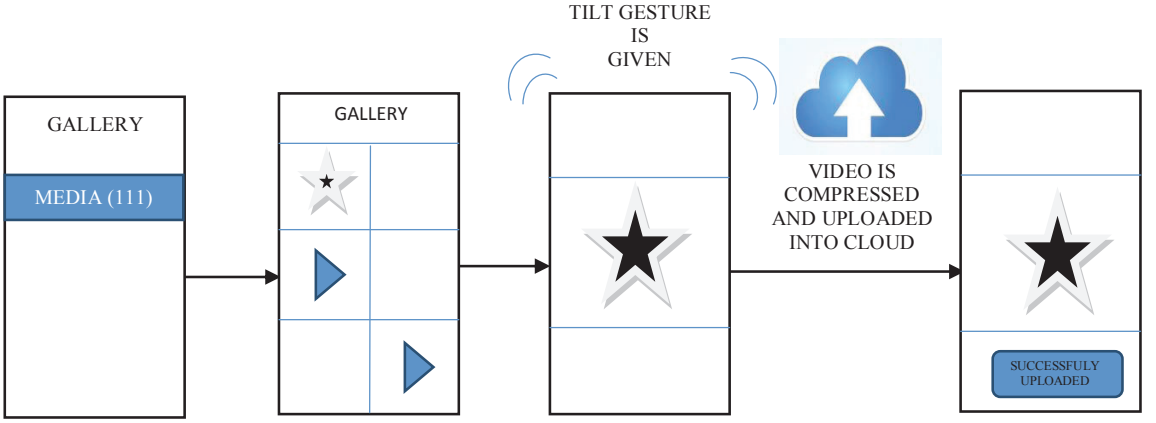

Fig 2.2.FURTHER APPLICATION INNVOCATION

4. Challenges Faced

One of our biggest problems faced during this project was compatibility. The question of the function of various sensors present and not present in various android devices. High lever proximity sensors where required to be present in order for the direction of the hand to be recognized, having various functions for each direction. Hence to make this application compatible for all android devices, we went on to make use of the gyro sensor and use tilting as our gesture function. Another challenge faced was including more than one cloud service i.e., giving access to two or more cloud services. The combination of API's into a single unit brought lot of complications. Also the video compression technique which was to be had to be employed had to compress both the pictures and videos.

5. Result

Fig. 4.1

Fig. 4.2

The Fig 4.1 elaborates the functionality of the application. At the invocation of the application, it starts collecting all the available photos and videos in the device, and it displays a thumbnail view. The contents will be shown in a gallery format. The user can choose his desired file. Fig. 4.2 represents, a maximized view of the picture or video is displayed**.**

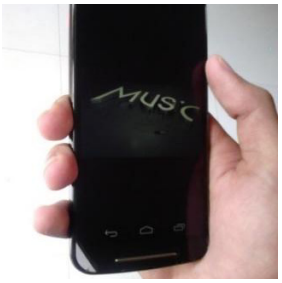

Fig . 4.3.1

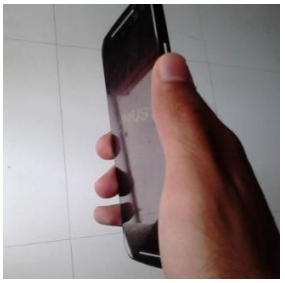

Fig. 4.3.2

If a file is considered or need to be viewed later, it can be stored in cloud. This can be easily done through this application. If that file is to be uploaded into the cloud, a tilt gesture from the actual viewing position (fig. 4.3.1) towards left (fig. 4.3.2) twice is given within a span.

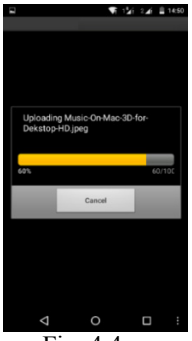

Fig. 4.4

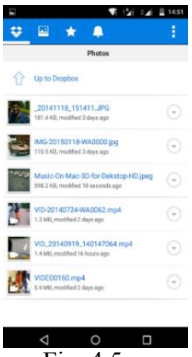

Fig. 4.5

The Fig.4.4 shows the uploading of the file into the cloud. Once the gesture is recognised the uploading takes place, the file to be sent to cloud is compressed and then uploaded into the cloud space. And in case you want the process to be cancelled just click the 'CANCEL' button shown in Fig. 4.4. This ability of cancelling the process can be used whenever an accidental store is driven by the user.Fig4.5 shows the successfully uploaded file into the cloud account which can be viewed and deleted.

6. Conclusion and Future scope

With almost all applications available from cloud these days, other cloud services apart from Dropbox can be implemented through their respective APIs into this project. This enables users to choose from their various accounts in the various cloud services provided. This also enable more flexibility and more options for the user.

The videos, before getting uploaded are compressed to enhance the efficiency. To make this application even more efficient image compression can also be included.

Modern day mobile phones come with many sensors. The sensor used here is gyro sensor. It is found as a common sensor in all the smart phones in today's market, so it is possible to detect the tilt gesture, which can be recognized in any smart phone. Thereby ensuring that the application is feasible in all the smart phones.

With gestures and cloud services playing a huge role in the world tomorrow, this application is the first step taken towards simplicity and efficiency.

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