Feature and Functionality Specification (FFS) Project – SyncGallery +

Revision History

Date	Revision	Description	Author
02-Feb-12	1.0	Document Created	Kobe Sun

Acronyms

Acronym	Definition
FFS	Feature and Functionality Specification
MKDIR	Make Directory
NFC	Near-field Communication

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1 Account

1.1 Registration and Activation

In order to enable the cloud service provided by the Dropbox, the user is required to register an account on the Dropbox. The registration process should be a fast and simple process. The users should provide their username, password, email and re-type email in order to successfully register an account on Dropbox. This process will be handled by the Dropbox API. A confirmation email will be sent to the email for registration after successfully registered.

1.2 Login and Logout

Login button should be appeared on the welcome page when the users turn on the application every time if they are not currently signing in to a Dropbox account. After successfully logged in, the user should be able to use functionalities provided by the Dropbox. Logout button will show in the application if the user is currently signing in a dropbox account. The user can log out and switch another account. Asides from the regular login process, we will also implement the auto login option. Once the user check “Keep me logged in” box, the username and password will be recorded by the application. On the next time when the user turn on the application, the application will retrieve username and password from the phone and login automatically. All the functionalities above can be handled by the Dropbox API.

2 Gallery

The gallery is the main page of the application. All the pictures and folders are shown here. Moreover, the user can access to other functionalities of the application by choosing from the menu in the gallery.

2.1 Select

The user can select single picture and perform the desired operation on it. The user also has the option of selecting multiple images/image directories. After multiple files have been selected, the user can then perform their desired operations on those files altogether.

2.2 MKDIR

In order to provide efficiency, the user can make a folder in the gallery and put different pictures in different folders. The folder's location of the files will be labeled in the database.

2.3 Delete

The user can delete picture from the gallery by pressing the delete option in the menu. By using "select", the user can delete several picture together.

2.4 Move

The users can move one or more pictures or folders to another folder after selecting the desired objects.

2.5 Rename

As in the normal operating system, rename is provided by the application. The user can choose to modify the name of the picture or the folder in order to make their files more organized.

3 Photo Editor (Aviary)

3.1 Image Processing

All the image processing functionalities will be implemented by the Aviary photo editor. Such functionalities include crop, rotate, brightness, contrast, saturation and sharpness. The user will be able to select from the list of all enhancements and apply it to the image. If the user does not like the effect, there is a cancel button which will undo the last action.

3.2 Crop

Selecting the crop option will generate a rectangle outline which the user can drag around, and decide what parts of the image to cut out.

3.3 Rotate

The rotate option will allow users to rotate the image by 90 degree increments.

3.4 Brightness

Selecting the brightness enhancement will bring up a slider where sliding it to the right will increase brightness, and sliding it to the left will decrease brightness.

3.5 Contrast

Similar to Brightness, there is a slider where sliding it to the right will increase contrast and sliding it to the left will decrease contrast. Increasing contrast will make an object in an image more distinguishable from other objects in the background.

3.6 Saturation

Saturation is controlled similarly to Brightness and Contrast. Increasing saturation will make the colours more vivid, whereas decreasing the saturation of will result in more of a grayscale version of the image.

3.7 Sharpness

Sharpness is also controlled via a slider. Sharpness is a form of focus, increasing sharpness will result in a more defined crisp image. Decreasing sharpness will result in a softer image.

4 Dropbox

4.1 Synchronize (upload & download)

After a user is finished enhancing their photo, they have the choice to upload the photo into Dropbox. The image can then be viewed by the user through any other device that can access Dropbox. If the image is shared on Dropbox, another user can take the same image, add their own enhancements and upload it back to Dropbox. The next time the original

user signs into Dropbox, they will see the updated image. This will allow multiple users to collaborate on an image.

4.2 Folder Operations (Delete, Rename, Move, MKDIR)

As Dropbox will be used as a type of online storage, it will be able to support the basic operations to keep the images organized. These functions will be called through the Dropbox API, where the changes will be reflected in the user interface.

4.3 Share

In order for users to be able to share images with other users, but also keep their personal images private, Dropbox uses shared folders. Shared folders are for two or more people with Dropbox accounts, and as described in the Synchronize section, changes made to files in a shared folder will be seen by everyone with access to that folder. The creator of the shared folder has the ability to invite other users and also to remove specific users if they so please.

4.4 Public Link

A nice feature of Dropbox is that every file placed in the default "Public" folder will be given its very own html link. With this, the user can easily share their images with someone that does not have a Dropbox account.

5 Camera

The camera is one of the kernel features in SyncGallery+. With the camera embedded in our application, the user doesn’t have to jump out of the SyncGallery+ and take the photo by using other third-party applications. We are not going to spend too much time on polishing the camera functionality. As long as it can perform basic operations, we believe that it can fulfill the user’s requirement. Because SyncGallery+ is an application specially designed for photo editing, easy synchronization and easy sharing. Camera is just one of the methods to produce the image.

5.1 Take Picture

The user can choose to switch to camera mode to take a picture within the application. In camera mode, we will only supply some basic functionality. To take a picture, the user simply taps the screen just as they do in stock camera application.

5.2 Flash

Flash is also available in SyncGallery+. User can turn it on/off in the menu bar. By default, the flash is automatically managed by the system. In most cases, users don't have to manually change its working status.

5.3 Switch Camera

As most Android devices are now equipped with two cameras (one is in the front and the other is on the back), we decide to implement the functionality to allow the user to switch the working camera. By default, the camera on the back is considered as the major one the users commonly use.

6 Social Network – Google+

Google+ is a social service launched on June 28, 2011. During the past half year, it has become the fastest growing social network platform in the world. On January 19, 2012, it was reported that Google+ had surpassed a user base of 90 million. Based on such a large number of user base and fast growing pace, we believe Google+ is a superb candidate platform that SyncGallery+ is supposed to support in first few milestones. Moreover, Android and Google+ are both products of Google. It could be much easier to integrate them together in practical development. We encourage SyncGallery+ users to be more active on Google+ as it introduces some creative ways to communicate, such as Circles. We are considering supporting more social network platforms in the future milestones, including Facebook and Flickr.

6.1 Share (Quick Upload)

During the Android initialization steps, the user's Google account information was already stored on the phone. Thus when the users choose to share the image on Google+, we can instantly retrieve the information from the phone device and finish the authentication process. The uploaded image will be shown in the

“Quick upload” folder on Google+. 3G network or Wi-Fi is required to accomplish this process.

7 Android Beam

Android Beam is identified as one of the most important new features in Android 4.0 Ice Cream Sandwich. It allows the rapid short-range exchange of bookmarks, contact info etc. via a near-field communication (NFC) protocol. The NFC communication has been more and more popular these years due to the fact that it requires an extremely simple setup only, replacing the pairing step of establishing Bluetooth connections or the configuration of Wi-Fi network. However, NFC only offers a low-speed connection relative to Bluetooth or Wi-Fi, which means it is hard to be used to transfer large size files, such as images. This is the main reason why there is no application of Android Beam on transferring the images in the app market. However, with the backend support from DropBox, we come up with an innovative solution to avoid the low transfer rate issue and make it possible to transfer the images in SyncGallery+. More technical details about this implementation can be found in System design – Android Beam section.

7.1 Transfer Image via NFC

From the user perspective, the process works as if the real image file is actually sent via the NFC protocol. When the issuer Android device and the receiver Android device are pressed together, if NFC is available on both two devices, a message “Touch to Beam” appears on the screen. With on tap, the image is sent immediately to the receiving phone without any other operations. The receiving phone will show the image instantly on the screen in view mode.