## System’s interaction with External Systems and its Environment

In the case of interaction with Android mobile phone devices, our image processing system aims to be built on the latest Android v4.x Ice Cream Sandwich SDK. It is also supposed to be compatible with all previous Android versions, including v2.2.x Froyo, v2.3.x Gingerbread and v3.x Honeycomb. We’ve considered producing an HD version for Android tablets, but currently we are focused more on mobile phone devices.

As one of the highlighted functions in our product, the synchronization will be developed and realized by using the open source Dropbox Android SDK. As a result, the Dropbox users can immediately see the processed images anywhere after their Android devices synchronize with the backend Dropbox cloud server.

The system will also be integrated to work with Google+ to distribute images through social media. Google+ was chosen over other social networking services mainly due to the fact that the operating system we are developing on, Android, is developed by Google, so there will be better compatibility.

We will be taking advantage of one of the newest features released with Android 4.0, Android Beam. The only requirement is that the device must be running Android 4.0, and it must be an NFC (Near Field Communication) enabled device.

Android Beam is an NFC based technology with which you can quickly share webpages, videos, apps, pictures by simply tapping the two phones together within the NFC range. For the purposes of this system, Android Beam will be used to share links to photos that users upload between Android devices.

## High-level system architecture

At the high level, the system will follow a Service-Oriented Architecture (SOA). The major components of the system are all interoperable, and will follow the format below.

Photo Editor (Aviary):

This component is responsible for all of the photo editing in the system.

Cloud Storage (Dropbox):

The cloud will store the images taken from the device, and make these images available for download from other devices.

Social Media (Google+):

The platform for which users can distribute their enhanced images.

Mobile Device(Android 4.0):

The main component what will link the above services.

## System Decomposition

Due to the fact that the system is following a Service-Oriented Architecture, the components have already been described in the above section but will be given more detail below.

Photo Editor (Aviary):

Aviary is a free photo editing tool that can be easily integrated onto a variety of platforms, including Android. Aviary will be built directly into the system where it will blend seamlessly with the rest of the system. It features many photo editing options that allow a user to fully customize their photos. Features include: crop, rotate, resize, boarders, brightness, contrast, grayscale and sharpness.

Cloud Storage (Dropbox):

Dropbox is a free web-based file hosting service that enables users to store and share files with others. Signing up for Dropbox will give users 2GB of free online storage for their photos.

Social Media (Google+):

Users will be able to put their customized image onto Google+ where their friends will be able to see the image, download it from the cloud onto their own device, add some enhancements to the image, and upload it back onto the cloud.

Mobile Device(Android 4.0):

Having the system run on Android 4.0 will allow this application to run anywhere (the cloud storage component will only work when there is an internet connection). Android Beam will provide an alternative method to sharing images between friends.