Department of Computer Science
The University of Hong Kong
Final Year Project

ACCESS EVERYTHING.
ANYWHERE. INSTANTLY.

Mobile Document Management System

DETAILED PROJECT PLAN

Group (FYP16011):
Yim Chi Kit (3035121700)
Chan Ka Chun Tony (3035094830)
Lam Ka Wai (2013578252)

Supervisor:
Dr. Vincent Lau

Date of submission:
2/10/2016

TABLE OF CONTENTS

1. Abstract

Nowadays, there are more and more people going to set up companies to run their own business. They are usually beginners with lack of knowledge in both management and business operations. Without a proper document management system, it would be kind of difficult for startup companies to proceed. Therefore, with an aim to help those small companies, our group is going to design and develop a mobile document management system (MDMS). Currently, there are some file storage services like Google Doc and DropBox that are open for personal use. Unlike these existing file storage services, the mobile document management system is tailor-made that it is specifically designed for companies to manage their document and operations.

The main objective of this project is to create a mobile application targeting at small companies that offer them with easier document handling and management, simple user interface and streamlined business workflow, which in turn offers them with sufficient assistance and convenience, facilitating their work and management. As MDMS targets at "fast" and "everywhere at any time", simple and self-explanatory user interface will be used for easy usage. The main objectives of the MDMS will be restated in detail. Afterwards, a research has been carried out to evaluate existing MDMS so as to find out their merits and shortcomings for us to take reference. By evaluating different MDMS, we found that most of functions provided are for personal use to manage files but some of them can be also useful to meet our objectives. So we will define our system functionality based on this review.

Following the evaluations, in our project scope, several valuable and unique features will be introduced to provide better user experience and user satisfaction. Some highlighted functions that we will include are versioning of edited documents, defining and managing business workflow, monitoring who is viewing documents at specific time, QR code document sharing, Wi-Fi printing, documents scanning and security control including user authentication and document encryption. With the incorporation of these unique features, it is hoped that small companies can benefit by having enhanced user experience, increase in employee productivity, streamlined business workflow.

About methodology, the equipment and technology applied in this project are mainly Google Cloud Platform, MySQL, Apache HTTP server, Unity. Concerning the programming language, Java, JavaScript and PHP will be used. Also, a simple assessment has been carried out to evaluate the feasibility of the project in terms of time, budget and technology. Several risks such as too broad project scope and hard to manage database and cloud at the same time are forecasted. Various mitigation strategies have also been suggested to overcome such potential risks. After all of these, other project management information like the detailed schedule including our milestones, task list and division of work will be listed to ensure the project can be done on time and the workload between members is balanced.

By implementing a user-friendly mobile document management system with unique features added, it is hoped that the document management efficiency, productivity among colleagues, workload management of company can be enhanced and optimized.

2. Introduction

Document management system (DMS) is an application used to access, manage and store electronic documents in an effective way. With the increase of need on workplace flexibility and instant management of document in the modern business, the idea of mobile document management system (MDMS) has been proposed to enhance DMS and make up the deficiency of the traditional DMS. MDMS is an application to support document management at any time and place. These instant upload, fast access and easy-to-retrieve of document anywhere are highly demanded by companies. In the era of mobile devices, with the help of a little handheld mobile gadget equipping with different hardware and apps, this mobility can be easily achieved by installing a MDMS app on the mobile device.

However, although there are some existing file storage services like Google Doc and DropBox or other MDMS apps like Document 5 and Briefcase that are open for all users, most of them does not deal with the following issues:

i.   Lack of business workflow support

Currently, most of MDMS apps in market are for personal purpose that cannot fit with the business purpose well. Business workflow management is one of the issues that companies are encountering but the existing MDMS apps do not support. Take invoice approval as the example of business workflow. Traditionally, an employee need to fill out a form including the item specifics and cost. Next, the form will pass to their manager who approves it and then sends to the accounting department. In the accounting department, this request may be also passed along to another manager. When finally approved, the form will be sent back to the employee who initiated the request. It is easy to see how documents could get lost in this shuffle while finding a lost document will cost a company $122 on average and it is also estimated that 7.5% of all company documents are lost completely. [1] If MDMS can support this kind of document workflow process, this cost loss will be definitely mitigated.

ii.   Loss of mobile device

Most of MDMS apps do not limit the number of mobile devices that can access the system per user. According to Leikums from International Association of Computer Science and Information Technology, this is a serious security risk when many workers are able to use their own mobile devices to access the resources and information of the organization. [2] One of the potential problem is loss of mobile device. In 2014, 5.2 million smartphones were lost or stolen in the U.S. [3] So, when more mobile devices can access documents of the company, the risk of confidential information leakage will be increased if the devices are lost.

In addition to the problems of existing MDMS, low adoption rate of DMS in small businesses is also worthy of attention. From a global survey in 2012, document challenges like searching the document they need or damage of document account for 21.3% of productivity loss. [4] However, a survey conducted by M-Files Software and Sage Small Business Panel reported that 77% of small businesses are still storing and managing paper records in an inefficient manner. [5] This may be due to the extra cost for buying a DMS and additional effort on document management. Hence, there is still a large market on document management for them. Therefore, to solve these problems and streamline the process of document management in small businesses, this project aims to design and develop MDMS for small companies, for easy achieve, retrieval, mobile access and workflow support with high usability and security. The purpose of this paper is to give a detailed project plan of developing MDMS by suggesting its objectives. Then, after evaluation of current MDMS, it will propose the scope of the system and discuss how the system to be implemented. Finally, it will assess the project feasibility and risks, and give the detail about project deliverables, division of work and project schedule.
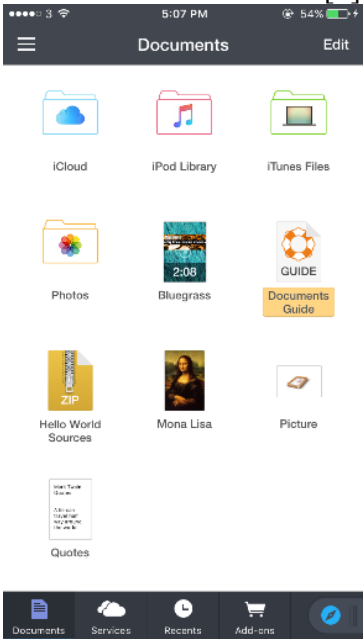
3. Project objectives

Due to the problems stated above, we hope the situation can be improved through our project. In our project, we are going to develop a mobile document management system for small companies for instant document handling. The following are the main objectives in this product:

i.   Enhance user experience
      Currently, as an all-purpose MDMS, the user interface has certain degree of complexity for user in order to support different functions within the small size of screen. Therefore, focusing on user experience, our MDMS will make use of touch-friendly features of mobile device so that user can simply view or send a document by drag and drop with higher usability.

ii.   Streamline business workflow
      In company, most of the documents need to be sent to others for reviewing or seeking the approval. Sometimes the document may lose during the circulation. Our product will support user to trace the route of the documents and enable manager to sign and approve the document within the system.
      For example, an invoice is used to claim an expense by an employer. Using our MDMS, he can capture the invoice by using the camera built in the mobile devices and save as a document. The invoice is then sent to the manager for seeking approval by signing. Next, the finance department receive the document and pay for the expense. All the functions can be done instantly and without waiting for paper transfer. This time saving and efficient action is what the app expected to perform.

iii. Strengthen security based on the features of mobile devices
      By different security strategies like setting permission on documents and restricting the number of mobile devices that can access the system, it can avoid unauthorized access to the sensitive documents and information leakage from mobile device loss.

iv.   Increase employee productivity
      Our system will enable employees to work on their documents anywhere, anytime and on any device. With smart phone in our hand, they can hold meetings or work out of office and still have access to the document that can increase productivity. Also, MDMS gives people ability to share documents with colleagues and give real-time comment to concerned people that have better collaboration with teammates and other employees in real-time.

v.   Reduce cost by replacing additional hardware/software needed in traditional DMS
      Taking advantages of mobile device, what you need is just the device and you can capture and digitize your documents with much ease by using its built-in hardware and installed apps. This can reduce cost of additional hardware/software like extra scanner or signature pad provide urgent document upload that is beneficial for small companies. To illustrate, imagine that a user was not in office but had an urgent need to scan a document immediately. To do so, he might find a scanner first. But if there was a MDMS, he could just use built-in camera on the phone to capture it and upload it to the system within a minute.

4. Existing MDMS evaluation

There are a wide range of document management apps on the market. It is believed that some basic functions and existing problems of document management system can be referred for our app development.
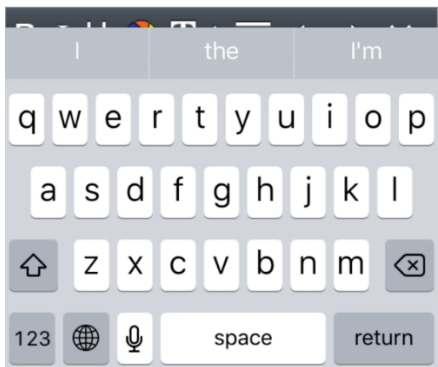
On iTunes App Store Hong Kong and Google Play Store, keyword "document management" is searched and a list of apps are recommended. Free apps are our main focus, including free apps to get but with in-App Purchases. The below list only shows unique and comprehensive apps with the order recommended by the App Store. Some apps performing similar functions are omitted. Features in red color means it is a rare or unique function among the document management apps. Comments are made to analyze the features of the app and screenshot of the app is provided so that the quality of our app development is improved.

App Name	Features	Improvement can be made
Document 5 – File manager, PDF reader and browser [6]	- Open and view common type of document, including iWork, MS Office, music, images, videos and PDFs - Edit document like highlight, strike-out, underline text and change font and font size of the whole document - Search and bookmark in the document - Mail, zip, unzip, upload, merge, send to another app, mark the file as favorite, enable night mode and create text - Play music in background mode - Support browsing the Web, downloading file and alerting when finished downloading - Support Dropbox, Google Drive, Box, OneDrive, WebDAV Server, FTP Server, SFTP Server, Windows SMB, SugarSync, Office 365 SharePoint, ShareFile, Yandex.Disk - Files will remember the last viewed page and zoom level	- Can read, bookmark and search source code file like .c and .lisp but cannot edit - Print function is performed by AirPrint or another app called Printer Pro developed by the same company. Source code file can only use Printer Pro - Highlighting, striking-out and underlining text can be done only in PDF, not in other text document. Adding text, drawing with your finger, filling forms and signing contracts in PDF is supported in another app called PDF Expert developed by the same company - Go to Page is supported in PDF only - Have English and Simplified Chinese but no Traditional Chinese version
Document Manager + Video Player [7]	- Edit and add folders including move, zip, delete and rename folder - Move, zip, delete, rename documents - Zip and unzip files - Download or upload documents from Google Docs, Box, Dropbox, FTP and sync with iCloud - Open files in other apps - Save files from emails or website - Send a file by email - TV/VGA out - Record sound as a file	- Advertisement pops out after each function performs - No way to quit the editing status in editing the document unless quitting the app
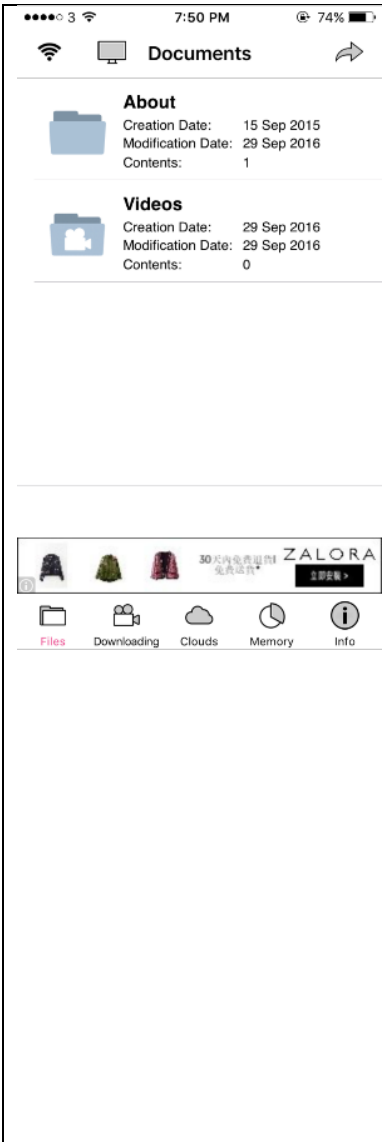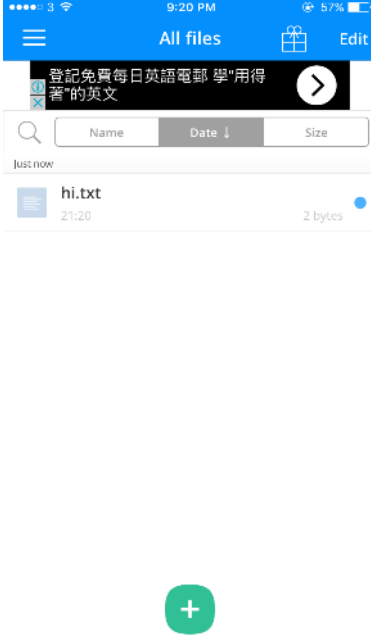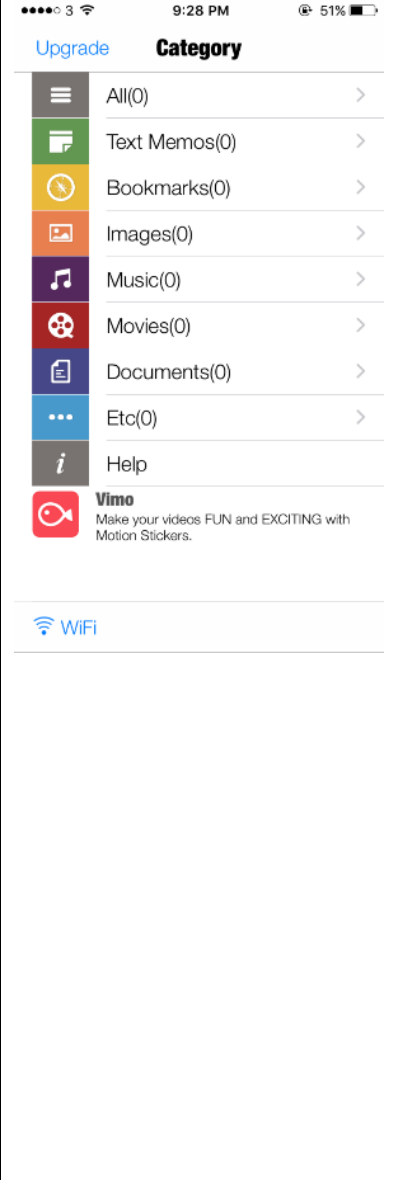
	- Save text to PDF - Scan photo to photo or document or grayscale then save as image or PDF (Scan2PDF) - Create a PDF by the screenshot of Apple Map (Map2PDF) - Convert webpages to PDF	hi - Memory tab to show used and available memory seems not clarify which memory it refers - Map2PDF function takes the screenshot of 1/4 size of the file. It cannot combine or edit the map to other files, or specify a place. Google Map should be better at stating more detailed information on the map than Apple Map

Briefcase – File manager & document pdf reader [8] 	- Import files from Mac or PC via Wi-Fi or iTunes - Download and upload files from Dropbox, Google Drive, SkyDrive, Box - Support viewing PDF file, Microsoft Office documents (Word, Excel & Powerpoint), iWorks documents (Keynote, Pages, Numbers), image files (JPG, PNG, GIF, TIFF and others) and other plain text file - Supports audio (MP3, AAC, Apple Lossless, AIFF, WAV) and video (MOV, MP4, M4V) file playback - Email files directly from Pocket Briefcase. Share files via "Wi-fi Sharing" function - Passcode required at App startup - Paste the text copied directly by Clipboard - Choose files by category and sort by name, date or size - Show files by favorite or recent	- Pay to unlock more functions or collect coins to unlock - Needs to use external Document scanner app which is not available in the Hong Kong Store - Image can be pasted in the Clipboard but only in square size
Air Transfer – Easy file and document sharing between PC and iPhone/iPad [9]	- Auto-classified files into 7-categories according to their type (1) Text Memo, 2) Website, 3) Images, 4) Music, 5) Movies, 6) Documents, 7) Etc...) - works even in background mode for	- Pay to unlock more functions - No cloud storage is supported

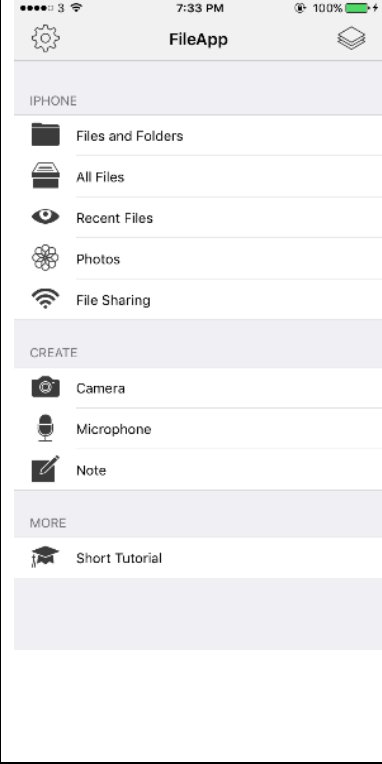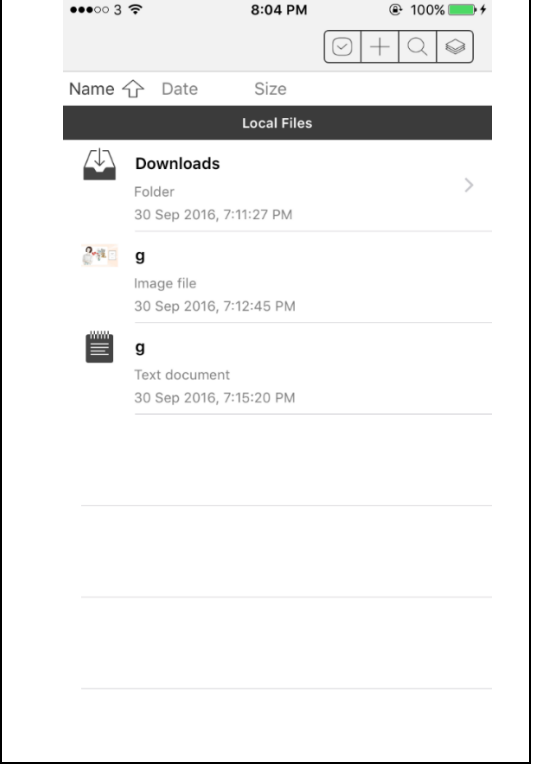|		
	current transfer - Supports MP3, WAV, CAF and other music file formats. Remote control from control center. Playback in background mode. Manage playlist. - Support photos (JPEG, PNG, GIF) and share directly to Camera Roll, email, SMS, Instagram, Facebook, Twitter, Flickr, Picasa or import from these social apps - Supports QuickTime Movie (.MOV, .MP4) formats and play video directly - Built-in Document Reader (viewer). Support PDF Docs (.pdf), Text (.txt), RTF (.rtf), MS Word (.doc, .docx), MS Excel (.xls, .xlsx), MS PowerPoint (.ppt, .pptx), Pages (.pages), Numbers (.numbers), Keynote (.keynote), HTML (.html, .htm) and more - Support Web Browsers such as Safari, FireFox, Chrome and Internet Explorer (File upload is limited in IE) - Move what you're seeing or playing on Mac/PC to your iPhone/iPad with just single drag & drop! It moves whatever you want; text memo, website address, photo, music, movie, document and so on - Backup photos or videos stored Camera Roll	
FileApp (File Manager & Document Reader) [10]	- System-wide Pasteboard - copy text and images, paste them to FileApp to create a file automatically - PDF Editor with annotation, edition, comments and bookmarks support - Create and edit text files (.txt, .html, .xml …) - Support MS Office documents (Word, Excel, Powerpoint), RTF and Plain Text, iWork documents (Pages, Numbers and Keynote), HTML files - Safari Web Archives - ZIP (Uncompress zip archives) - Send documents via email attachments - Open attachments from "Mail" app - Built-in image editor with many filters and enhancements	- The list format seems too large and less items are shown. It may change to icon version like apps displaying at the mobile screen

	- Slideshow - Send multiple images via email attachments - Support video and audio with Background, Continuous, Shuffle and Repeat play modes - File encryption with iOS Data Protection - Passcode to protect FileApp at startup - Wireless transfer Password if needed	
Document Management - Zoho Docs [11] 	- Access your documents created in online versions of Zoho Writer, Sheet, Show & Docs - View documents, spreadsheets, presentations, PDFs and other types of documents - Remembers your account info so you can avoid frequent logins - Google Apps login - Offline feature for documents to view them with no internet - View shared documents	- Remembering log-in information may lead to security issue

Table 1. Main features and what can be improved of existing MDMSs

To conclude, all of the above apps are for personal use to manage their files. However, many functionalities are great reference for our apps. Our document management system introducing for small business company should still have its market value.

5. Project scope

Based on the above evaluation, our system is planned to have the basic functionality of DMS with additional mobile features listed as follow:

5.1 Basic functionality
i.   Document storage
    - Store various document types, including word-processing files, emails, PDFs, images and spreadsheets
ii.   Searching an entire storage space by keywords and tags
    - Search the content of file and fast retrieval of the searching result
iii. Monitoring who is viewing documents and when
    - Track and report edits being made to documents by statistic
iv.   Versioning of edited documents
    - Backup and retrieve previous versions of edited documents for failure recovery
    - Represent editing history of a document by a graphical tree

5.2 Unique features
i.   Defining and managing business workflow
    - Define a route that document will send to and the action needed to follow like comment and signature with a specific deadline
    - Allow user to trace the progress and where the document is like checking parcels in TAO BAO
ii.   Mobile oriented document operations
    - Simple user interface with large document icon and button
    - Make use of touch-friendly features of mobile device, user can simply send and upload documents with the flick of your finger like drag and drag
    - Generate QR code to share document to external user instantly
    - Support user to capture documents by camera and classify them by tagging
    - Wi-Fi printing
    - View document with a larger font size
    - To fit with the size of the mobile device, instant document editing features like merging and slicing will be provided
iii. Security
    - User login
    - Restricting access to certain documents by permission setting
    - Encrypt document while uploading
    - Auto log out when the app is idle for too long
    - Limit the number of device allowed to use the system for each user, e.g. each user is only allowed to register at most 2 mobile devices
iv.   Calendar and user preference
    - All deadlines of the document that need to handle will be shown in a calendar to fully utilize the business workflow
    - Have notification to remind user when the deadline approaches
    - Allow user to prioritize the documents and sort files by tag, name or date

5.3 Priority of system functionality
As the scope is relatively broad and we only have a year to develop the system, to balance the functionality and the time limitation, the above functions will be prioritized as follow and we will first implement the functions with higher priority:

Priority	Functions
Height	5.1.i, 5.1.iv, 5.2.i, 5.2.ii
Medium	5.1.ii, 5.1.iii, 5.2.iii
Low	5.2.iv

Table 2. Priority of system functionality

6. Methodology

6.1 Equipment and technology
The following equipment and technology will be used during the system development:

i. Google Cloud Platform
    Responsible for document storage in the system. Cloud computing has become one of the popular trends in document management. As Cloud ensures that documents are available at anytime and anywhere, it can fulfill the requirement of MDMS – instant access. The reason to use Google Cloud Platform is that it provides durable, highly available storage with fast performance, and well developed API for developer to use with low cost. [12]

ii. MySQL
    An open source relational database management system that used for storing user information and meta data of the document being stored in the cloud, like the editing history and owner of a document, to associate with the Cloud storage for document management

iii. Apache HTTP server
    The most used web server software in the world. It serves user for listening and responding to the document management request like uploading and retrieving document from the MDMS app.

iv. Unity
    A cross-platform development toolkit that used to develop application for mobile devices. The advantage of using Unity is that both Android and iOS app can be built at the same time by only using Unity. It is not necessary to make an app for different platforms by developing multiple times and going native in each platform that can reduce the implementation time.

v. JavaScript
    The programing language used in Unity to develop MDMS app.

vi. PHP
    Simple and easy-to-learn programming language used in the sever side to handle the request from user.

6.2 System architecture design
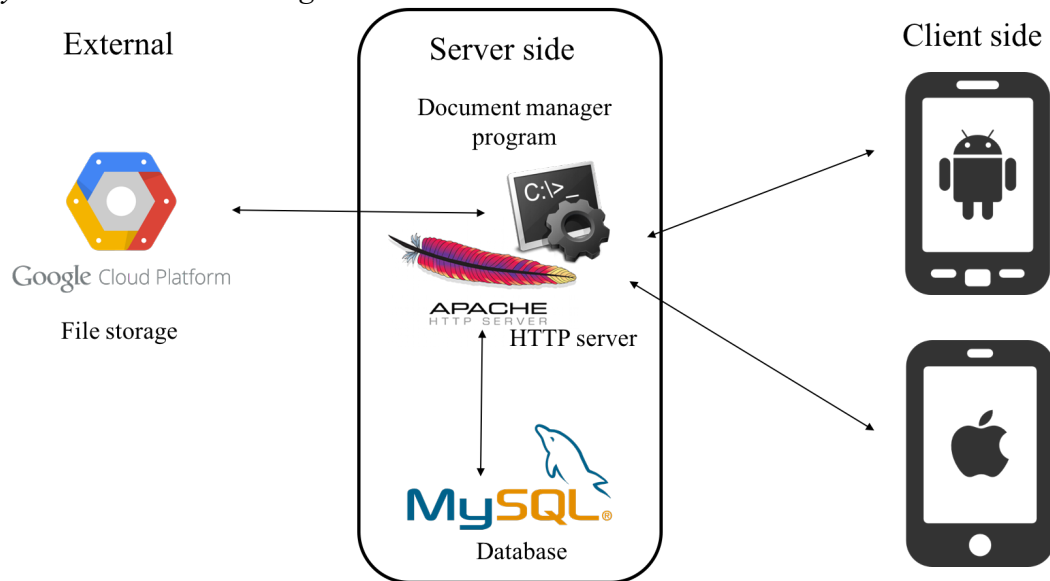
Figure 1. System architecture

To achieve the objectives of the project, several components will be integrated in our system. Both Cloud and database will connect to a program called "Document manger" in the HTTP server. For example, when user sends a request for retrieving a document from a mobile device, "Document manager" will handle the request and get the document from Cloud and relative information about the document form database at the same time. Then, it will send back the required document with its information to the user.

6.3 Development process
The following are the five main stages in our software development.

Figure 2. Software development process

   i.   Requirement gathering
- Background research
- Evaluate existing MDMS apps
- Define functionality of our product

    ii.   Design
- Evaluate the equipment and technology can be used in the development
- System architecture design
- User interface design
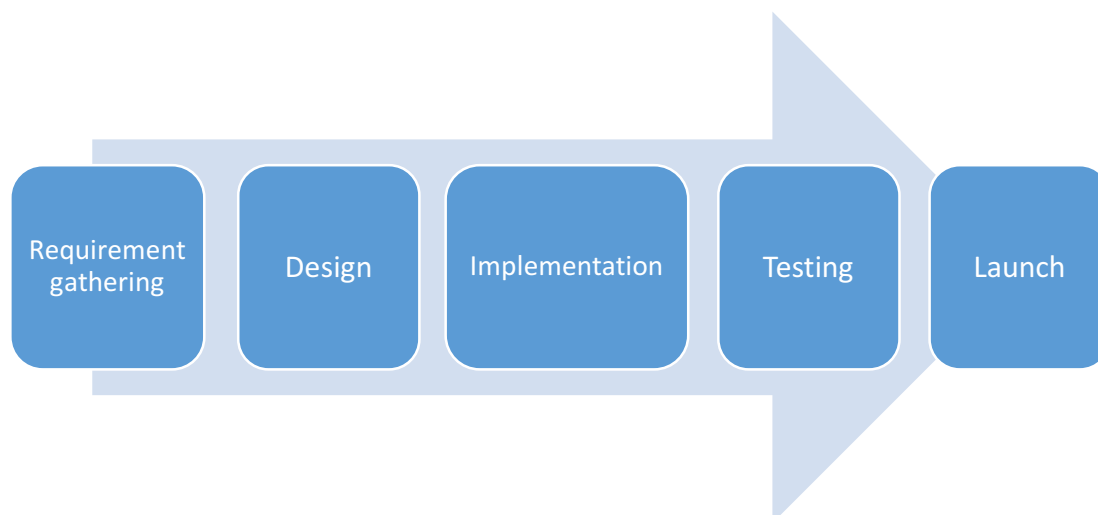- Cloud and database design

    iii.   Implementation
Phase 1:
- Set up server, database and Cloud
- refer to and make use of existing open source DMS, like Kimios DMS and OpenDocMan to develop a mobile app version of DMS
- build a prototype with the basic DMS functions, like uploading, preview and editing of the document qualitatively and efficiently based on those well-developed open source DMSs

Phase 2:
- add more mobile and our special features to the app like camera capturing, defining business workflow and tailor-made mobile device user interface with higher usability
- Optimize system performance

    iv.   Testing
- Test the product in term of usability, system performance, security and correctness by different test cases and tasks

    v.   Launch
- Present and demonstrate the product in final presentation

7. Feasibility assessment

7.1 Technology
Concerning the technological side, the project is feasible as there are some open source DMS to take reference like Kimios DMS and OpenDocMan so that a basic framework can be built. The Mobile Document Management System is mainly based on PHP and JavaScript programming. As JavaScript, PHP and MySQL are already learnt and practiced by the group members.

7.2 Time
Considering the time, it is believed that eight months is sufficient for project delivery. As there are existing APIs, it saves time for constructing the basic framework. Also, regular meetings will be held to keep track of the progress and review the functionalities. Our group members will offer support to each other whenever needed. Therefore, the project should be able to be completed on time.

7.3 Budget
Considering the budget, there are three things needed to be purchased. First, a server is needed for sharing of data and resources among multiple clients. Second, it costs $0.026(GB/Month) for google cloud storage. Last, a database is needed for storage of user information. As there are three thousand dollars' allowance, it is more than enough and thus economically feasible.

8. Potential risks and mitigation

Risk	Probability	Impact	Mitigation strategy
1.Insufficient expertise in mobile application development	High	Medium	- Allocate more time on research and getting familiar with mobile development - Take more open source API (eg. Google Doc and DropBox) as reference
2.Tight schedule	Medium	High	- Each team member is responsible for different functions so that implementations can be done concurrently - Arrange regular meetings for measuring progress and consultation with supervisor - Prioritize functions of the system that implement the functions with high priority first
3.Similar functionalities with existing applications	Medium	High	- Figure out unique features that other applications do not support and combine the merits of each applications - Make the application tailor made for companies' document management
4.Project scope is too broad	Medium	Low	- Narrow the scope by prioritizing functions of the system - Have more investigation on what small companies really need and exclude those functions that are not practical
5.Difficulty in managing cloud and database at the same time	High	High	- Ensure database and cloud are available on the server at any time - Capture exceptions and report when disconnected

Table 3. Potential risks and mitigation in the project

9. Project deliverables

In the project, Android and iOS app of mobile document management system are our development product. During the development, following project deliverables will be also produced in different phases to report our project design and progress to project supervisors, and to help user to get familiar with our system.

Phase	Deliverable	Purpose/Description
Phase 1	Detailed project plan	• Describe project background and propose the project objectives • Suggest how the project is to be implemented and project schedule
	Project web site	• Introduce the project • Update the progress of the project • Upload project documentation
Phase 2	Interim report	• Report what has been changed and accomplished in the first semester • Report what will be done in the second semester
	System prototype	• Demonstrate basic functionality of our system in the first presentation
	First presentation	• Present the objectives of the project • Report the project progress • Demonstrate the system prototype
Phase 3	Mobile document management system	• An Android and iOS app with full functionality of the system
	Final report	• Report the entire development process • Describe the project result • Suggest what can be improve in the future
	Final Presentation	• Present the project result • Demonstrate the final product
	Project poster	• Summarize the idea of the project in the poster for project exhibition
	Project exhibition	• Demonstrate the final product

Table 4. Project deliverables in each phase

10. Division of work

As our project group has 3 members, based on the strengths of group members, the task assignment is as follow:

Task/Name	Yim Chi Kit	Chan Ka Chun Tony	Lam Ka Wai
Background research	✓	✓	
Existing MDMS evaluation			✓
System design	✓	✓	✓
Back end server programming	✓		
MySQL set up	✓		
Google Cloud Storage set up	✓		

Front end app implementation			✓
Implementation of document operations (edit, preview, upload etc…)		✓	
Implementation of defining business workflow		✓	
User interface			✓
Security		✓	
Documentation	✓	✓	✓
Project web site			✓

Table 5. Work allocation of each group member

11. Tasks and project schedule

The whole project duration is from 1/9/2016 to 2/5/2017. Different tasks will be performed in different phases as the schedule below:

Duration	Tasks
1/9 – 2/10	*Deliverables of Phase 1* • Background research • Requirement gathering • Detailed project plan • Project web site
3/10-3/11	*Design and analysis* • Refine system requirements • Study of open source DMS and Google Docs API • System design
3/11-3/1	*1st implementation phase* • Set up server, database and Cloud • Implement preliminary front end and back end with basic functions of DMS
20/12-22/1	*Deliverables of Phase 2* • Interim report • System prototype with basic functions and some mobile featured functions • First presentation
23/1-30/3	*2nd implementation phase* • System and project review • Implement more mobile featured functions • Optimize user interface and system performance • System testing
21/3-2/5	*Deliverables of Phase 3* • Final report • Final presentation • Project exhibition and project poster

Table 6. Milestones and duration in each phase

Task/Month	9		10		11		12		1		2		3		4		5
Deliverables of Phase 1																	
- Background research	█	█															
- Requirement gathering	█	█															
- Detailed project plan		█	█														
- Project web site		█	█														
Design and analysis																	
- Refine system requirements			█	█													
- Study of open source DMS and Google Docs API			█	█	█	█											
- System design				█	█	█											
1ˢᵗ implementation phase																	
- Set up server, database and Cloud					█	█											
- Implement preliminary front end and back end with basic functions of DMS							█	█	█	█							
Deliverables of Phase 2																	
- System prototype									█	█	█						
- Interim report									█	█	█						
- First presentation										█							
2ⁿᵈ implementation phase																	
- System and project review									█								
- Implement more mobile featured functions											█	█	█				
- optimize user interface and												█	█				

Task																		
system performance													■	■				
- System testing														■	■			
Deliverables of Phase 3																		
- Final report																■	■	■
- Final presentation																■	■	■
- Project exhibition and project poster																		■

Figure 3. Project schedule

12. Mini-conclusion

This project utilizes the advantages of technology, Google Cloud Storage as well as analysis of company needs to help streamline the process of document management in companies. By providing the aforementioned functions and convenience on mobile devices, the application should be able to suit every need for companies by providing better document management and streamlined business workflow. It is hoped that through our collaboration, it can come up with a multi-functional application that can truly help the companies and the unique functions of the application can help differentiate it from the existing applications.

13. References

[1] The Paperless Project [Internet]. The Paperless Project: [cited 2016 Sep 16]. Available from: http://www.thepaperlessproject.com/the-impact-and-inefficiency-of-paper-in-the-office/

[2] Leikums T. Document Management System Mobility – Main Trend in Future Document Management. International Journal of Computer and Communication Engineering [Internet]. 2013 [cited 2016 Sep 13]; 2. Available from: http://www.ijcce.org/papers/236-W0025.pdf

[3] Airwatch [Internet]. Vmware Airwatch; [updated 2015 Oct 15; cited 2016 Sep 20]. Available from: http://blogs.air-watch.com/2015/10/23-disturbing-statistics-mobile-security/#http://blogs.air-watch.com/2015/10/23-disturbing-statistics-mobile-security/#

[4] Business [Internet].Business; [updated 2015 Dec 7; cited 2016 Sep 19]. Available from: http://www.business.com/document-management-software/7-statistics-that-will-make-you-rethink-your-document-management-strategy/

[5] LinkedIn [Internet].LinkedIn; [updated 2016 Jan 18; cited 2016 Sep 20]. Available from: https://www.linkedin.com/pulse/small-business-owners-do-you-still-store-manage-paper-matthew-ziegert

[6] Documents 5 - File manager, PDF reader and browser [Internet]. iTunes; [updated 2016 Sep 26; cited 2016 Sep 26]. Available from https://itunes.apple.com/app/documents-by-readdle/id364901807?mt=8&ign-mpt=uo%3D4

[7] Document Manager + Video Player [Internet]. iTunes; [updated 2015 Sep 30; cited 2016 Sep 22]. Available from https://itunes.apple.com/us/app/document-manager-+-video-player/id507942038?mt=8

[8] Briefcase Pro - File manager, cloud drive, document & pdf reader and file sharing App [Internet]. iTunes; [updated 2015 Jun 5; cited 2016 Sep 22]. Available from https://itunes.apple.com/us/app/briefcase-pro-file-manager/id579224808?mt=8

[9] Air Transfer - Easy file and document sharing between PC and iPhone/iPad [Internet]. iTunes; [updated 2015 Feb 26; cited 2016 Sep 22]. Available from https://itunes.apple.com/us/app/air-transfer-easy-file-document/id521595136?mt=8

[10] FileApp (File Manager & Document Reader) [Internet]. iTunes; [updated 2016 Sep 21; cited 2016 Sep 22]. Available from https://itunes.apple.com/us/app/fileapp-file-manager-document/id297804694?mt=8

[11] Document Management - Zoho Docs [Internet]. Google Play; [cited 2016 Sep 23]. Available from https://play.google.com/store/apps/details?id=com.zoho.docs&hl=en

[12] Google Cloud Platform [Internet]. Google; [cited 2016 Sep 23]. Available from https://cloud.google.com/storage/