FMOL HEALTH SYSTEM INTERNSHIP

ISDS 3075 Internship Report

Abstract

From intern to support analyst, the Franciscan Missionaries of Our Lady Health System has played a major role in my life and career as an IT professional. Starting in fall 2013 to present and being promoted, to assisting in hiring the next intern. We have collaborated and implemented a new process in which equipment receiving time was reduced by 75%. This report contains my experiences working on this project, and other major projects I have completed since employment.

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Company Profile

The Franciscan Missionaries of Our Lady Health System (FMOLHS) was founded in Monroe, Louisiana in 1911 and is Louisiana's leader in health care innovation as well as the largest health system. The mission-focused Catholic healthcare ministry aims at bringing the most advanced technology and research to ensure patients receive high quality care. They are headquartered in Baton Rouge, Louisiana, and their largest hospital in the health system is where my internship – now part-time job – has taken place, Our Lady of the Lake Regional Medical Center (RMC). Each of their hospitals throughout the organization are abundant with accolades, and strive to carry out the organization's values and principles to meet their vision of providing advanced technological care.

The internship program I entered was with the local desktop support team, which provides support to Our Lady of the Lake RMC, the Heart and Vascular Institute, the newly-acquired Sherwood campus, and several other departments located throughout Baton Rouge such as logistics and marketing. Throughout the years I've been employed the team is constantly learning new methods of support for the wide variety of issues/implementations that arise. From virtual desktop solutions to the change of electronic medical records (EMR) systems, the IS department as a whole is always busy to provide the quality of healthcare that the organization visions. This internship and

job have provided a quality experience in the corporate-healthcare industry which has also welcomed my ideas and methodologies.

Duties and Responsibilities

My first order of business was to become acquainted with the new organization and the information systems used. I joined the team when IS was implemented a Citrixbased desktop solution, for which I had acquired experience with at my previous job as an assistant network administrator. Quickly I became the virtual desktop interface, or VDI, specialist within the team, which I frequently provide support to quality assurance and testing of virtual desktops. I've lead a large-scale deployment throughout the main hospital's nurse's stations and related areas, for which roughly 800 zero clients were deployed, as well as supported many department moves to the Sherwood campus. After three years of employment with FMOLHS I have assisted in maintaining stock, finding innovative ways to reduce process times, maintaining warranty items, supported moves/deployments, and tested virtual desktops. This opportunity has allowed me to gain experience in the corporate healthcare world, therefore I am proud to say this position has helped me grow has a person and IT professional.

During the summer of 2016 a collaboration effort made up of the local desktop support team's interns, which included myself and an LSU computer science student,

were able to work on a project created by us to reduce the equipment receiving process at Our Lady of the Lake. Since the local IS team at the Lake supports most corporate facilities as well as the Lake, our team is in charge of ordering equipment for the Lake, corporate facilities, corporate IS equipment, along with what is needed for the OLOL College team. The vast amount of equipment used by the organization coupled with a now-ongoing preparation for an EMR switch, improvement opportunities are necessary to take to ensure a smooth transition. The project was split into equally-challenging parts, a mobile-application that integrates a handheld-scanner API and coordinator/backend design. Our ambitions were somewhat heroic, and in spite of that we were driven to complete vital pieces of our original idea in order to meet our deadline as well as achieving our primary goal: presenting a complete and efficient method for equipment receiving.

Being a support analyst for a non-profit, one would almost expect legacy systems, but not the FMOL Health System. They are one of the most technologically-advanced corporations in Louisiana. In fact, because of the innovations, it has provided valuable experience with new and emerging technologies alongside developing employees to being effective professionals.

Analysis of Applied Business Concepts

When I originally joined Our Lady of the Lake's local IS support team in fall 2013, I was a registered Computer Engineering student. About a year into my employment I switched to Information Systems and Decision Sciences, thus being able to directly apply my classwork to my job. I have since implemented various techniques and methodologies I have learned from my courses into my work; using Microsoft Office suite, VMware products, Microsoft Windows, Active Directory, and project management ideals and concepts.

Efforts are not always successful, however, and I have pinpointed improvement areas such as being a more effective communicator. Given my group assignments and presentations in my senior classes, I believe I have improved, though there is always room for improvement. For example, each year the Baton Rouge teams hold a meeting in which we are able to pitch ideas for the possibility of future implementation.

Because of these meetings I have been able to apply concepts learned to portray my ideas in a realistic and simplified manner to best convey my thoughts.

During deployments managerial concepts and project management methods can better assist in the planning and implementation of said deployments. For example, every deployment I am a part of I strive to provide extensive documentation for my efforts, such as detailed build processes or maintaining an Excel document to track

progress. I recently completed a deployment of healthcare-grade microphones for clinical dictation in which I used Excel to track all progress alongside visual metrics to track stock counts, ensure I tracked devices that were exceptions, and maintain daily progress charts to adhere to the deadline presented upon me. On top of applying technical and project management skills, I also attended walk-throughs with the PM of the project and the CMIO (Chief Medical Information Officer) of the company where I successfully communicated the solutions to misunderstandings of clinical areas as well as plans moving forward for organization's saturation of the dictation device from a local support team's perspective.

The summer project consisted of a combination of PowerPoint presentations to pitch our idea and report progress, project analyses (focusing on effectiveness over time), communicating effectively to external equipment vendors as well as other department leads within the IS department. For my efforts, I also used Excel to manipulate vendor-provided equipment data, OneNote to track to-do lists and reminders, Outlook to communicate, MySQL for database design and implementation, VMware Fusion for virtualization of backend servers, and some PHP for web services. All the while, my teammate and I communicated via Slack to ensure we were aligned with our mutual ambitions, ensuring what our project will deliver is effective and efficient.

Personal Reflection

My time at Our Lady of the Lake's desktop support team has been overwhelmingly enjoyable. I have been employed there for a little over three years now and I have developed a plethora of skills and experiences that I could not have attained elsewhere. Though I joined the team as an Engineer with no real future in the IT industry, I have transitioned to a graduating ISDS student with a brilliant future in the industry.

The IS department as a whole is generally chaotic and is not effective at communicating among teams in my experiences. Different methods of communication are utilized, however there has not been one to officially become the sole method. Because of this disconnect, teams are left in the dark on implementations and local support teams often do not learn of changes until they go into effect, or learn the methods were not optimized for production use. Being with the largest hospital's support team, we generally witness the most issues, therefore have the pleasure of solving the rarer, more challenging issues. To me the challenging issues are most enticing as they commonly lead to broader ways of thinking, along with more opportunities to communicate with great detail. By doing so I believe to be encouraging change amongst the once-traditional work environment.

Despite some negative feedback from my frequent communication efforts, I have come to understand that my communication has led to a solid team connection.

Vertically speaking, IS tends to be very busy especially now with the EMR transition, though still make an effort to communicate new and experimental implementation instances down to local teams. Personally I enjoy having the responsibility of extensively documenting virtual desktop quality assurance in conjunction with documenting troubleshooting documentation. My goal is to encourage effective communication amongst teams and provide reasoning through the use of details in order to convey my vision of an efficient, yet effective workplace.

Reflective Activity Journals

This section provides reflection of obstacles I have overcome and the lessons gained throughout my employment. For the majority I will focus on my summer project, though I will include notes from projects I feel encompass my most valiant efforts and applications. The skills and methods applied in each scenario are to provide outlook on my thought processes as well as any personal subjectivities for or against my work. By documenting these scenarios chronologically, I hope to portray my experiences and growth as an IS intern turned support analyst for the Our Lady of the Lake local desktop support team.

Summer Project: Late May through Early July

Date	Day of Week	Time	Hours
May 24, 2016	Tuesday	8:00AM-4:30PM	8

Description of Work

The other intern and I have decided our idea will be to implement a mobile application using a scanner sled coupled with a local backend that will store received data information easier reporting. Our current database solution was built on SQL 10+ years ago, therefore we've decided to design and implement our own version with hopes of corporate implementation.

We've gathered the necessary documentation to analyze and have identified how we will restructure the equipment receiving process.

Today, we began work on our proposal PowerPoint for our pitch meeting tomorrow morning. This document will be divided into two separate parts for each of us to get a turn to explain our selected parts of the project. My piece was to identify the problem, condense the process flow, provide metrics to show the effectiveness of our plans, and to gain constructive feedback regarding moving forward with the database design.

This day was exciting for us and I feel we may have let our imaginations get the best of us by having the wild ambitions. We discovered the iPhone scanner sleds during an equipment presentation for the upcoming, complete refreshment of end-user devices. Knowing our administrative assistant (AA) works tirelessly to complete the equipment receiving procedure, we knew the team would receive even more equipment come the refreshment. At the time, the AA was using a laptop on a non-powered cart with a tethered scanner, meaning the laptop needed to constantly be plugged in while the scanner was attached to the laptop via USB. The hindrance in mobility alongside Excel spreadsheet work pre/post-receiving, which presented a wonderful opportunity for the other intern and I to use the future scanner sleds to use in a non-clinical setting with the possibility of use across the organization. Our primary objective was to follow through with our idea, projected to reduce receiving time by 75%. The condensed process flow can be found in Figure 1-A.

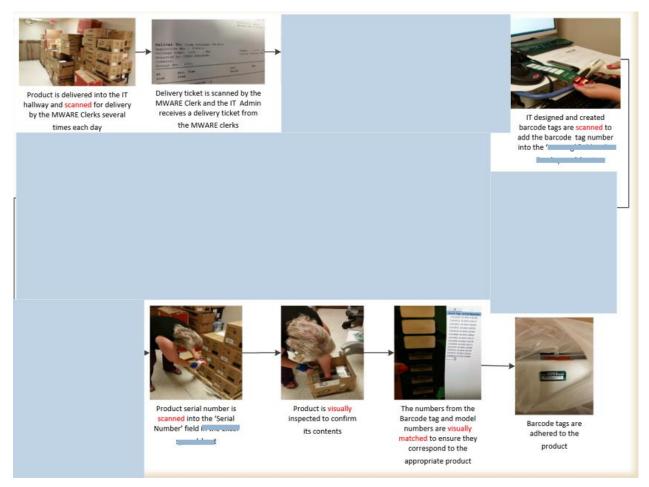


Figure 1-A Visual representation of projected condensation of existing receiving process.

Date	Day of Week	Time	Hours
May 25, 2016	Wednesday	8:00AM-4:30PM	8

Description of Work

Presentation day.

The other intern and I have prepared our PowerPoint proposal and prepped our pitch. We begin discussing the devices we plan to use for design and development, as well as communication methods and progress reporting regimes.

Our presentation went well and we have been granted permission to pursue our ambitions under the condition of a strict timeline. Due to the upcoming EMR transition our skills will be reallocated to transition preparations mid-July. We are to present our progress as well as any issues we may cross in weekly meetings.

Overall my teammate and I share the responsibility of creating

PowerPoints to convey our progress. While my teammate will be

working on the iPhone application, I am tasked with communicating

with vendors, understanding the problems associated with our current

database, CMDB, and designing/constructing the backend. The plans

are to design a database and use it to store data regarding the received equipment (i.e. serial numbers, MAC addresses, manufacturer, make, model, etc.). My first draft of the database can be found in Figure 2-A.

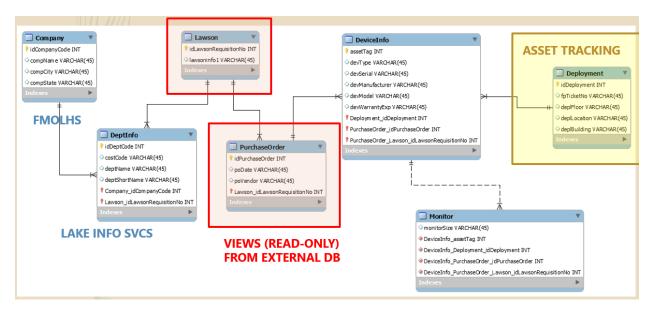


Figure 2-A Initial database design, made in MySQL Workbench as learned in ISDS 3110.

The original plan was to maintain the overall goal of the existing database, though moving away from being half asset tracking. In summation, the above was devised without a deep understanding of the illogical manner in which the existing database was designed. I planned to contact everyone necessary to understand the database behemoth.

My teammate and I were granted permission to use the team's MacBook Pro's for operation, mostly because the app was to be written in Swift (language for modern iPhone applications, succeeding Objective-C) on Xcode (Apple's IDE, required). We decided to use Slack to communicate both our progress and future plans. I installed the tools necessary for designing the database and building virtual servers to ease deployment into the existing virtual farm, MySQL Workbench and VMware Fusion. You can see a copy of my notes from this day in Figure 2-B below.

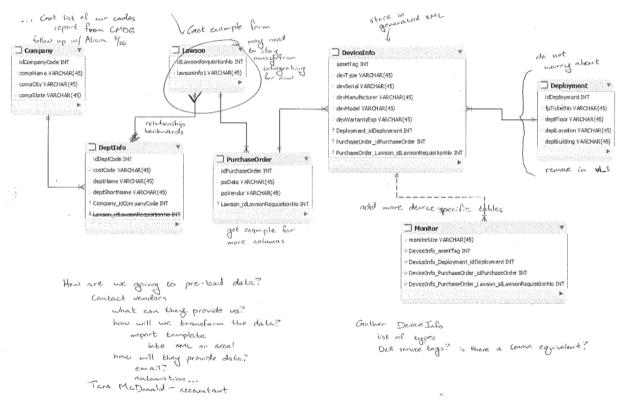


Figure 2-B Scanned copy of notes written on initial database design depicting restructuring efforts and unanswered questions for vendors. Questions were often written down to prepare for effective communication.

Date	Day of Week	Time	Hours
May 26, 2016	Thursday	8:00AM-4:30PM	8

Description of Work

Today I have been contacting our accountant, database administrator, and vendors to gather as much data about the existing processes as possible including history regarding the traditional approach. The existing database, CMDB (Content Management Database) was built to double as an asset-tracking system, but was missing the front-end necessary to track assets. On top of that, the data from local team's AAs had to be submitted to the DBA (Database Administrator) under very strict guidelines in order to be uploaded. The template provided for the database upload was outdated, thus causing a frustration when supplying receiving data. Due to the strict guidelines, data from our team, the largest in the health system, had not been uploaded in about two years.

My team was able to pivot our goal to send CSV (Comma-separated value) document constructed in such a way that it is in accordance with the requirements set forth by the DBA.

For the majority of communication, I used email and the provided company phone to communicate with the accountant, DBA, and vendors. Using my prepared

questions, I was able to gather the necessary information in a short amount of time.

Documentation regarding the requisition documents and accounting tree was also gathered since it played a role in the structure of some facility strings used in CMDB.

For the sake of time, I decided to cut the tables from the database design relating to the financial side of the receiving process to focus solely on tracking device information.

	Day of Week	Time	Hours	
June 6, 2016		8:00AM-4:30PM	8	
has	been about a week a	nd a half since the pro	ject started and I am	
ill ha	aving trouble underst	anding the logical reas	soning behind the	
ruct	ure of CMDB. At this	point I have redesigne	ed the database time	
nd ti	me again, however l v	was able to successfull	y build a MySQL	
atab	ase server using Wind	dows Server 2012 R2 a	nd VMware Fusion,	
both running trial licenses provided via LSU OnTheHub. I have spent				
time outside of work building and testing the connection from OSX to				
the database by setting a static IP on the test VLAN we have in the				
office. For out-of-office work I am able to communicate by testing				
uerie	es inside the VM.			
	ill harruct nd ti atab oth a me da	Monday has been about a week a fill having trouble understant at this at abase server using Windowship trial licenses part outside of work building database by setting a server database da	Monday 8:00AM-4:30PM has been about a week and a half since the profill having trouble understanding the logical reason tructure of CMDB. At this point I have redesigned at time again, however I was able to successfull atabase server using Windows Server 2012 R2 and oth running trial licenses provided via LSU OnTheme outside of work building and testing the corne database by setting a static IP on the test VLA ffice. For out-of-office work I am able to comm	

Queries have started to be built for entering data supplied from the mobile app, communicated via a yet-to-exist PHP web service.

One of the two vendors have supplied me with the equipment data they track from their own records for me to use. My idea was to prefetch the data from a service account set up internally in order to prepopulate the database, and thus providing the projected receiving data before the package is actually received. This would negate all prep work needed by the administrative assistant.

Date	Day of Week		Time	Hours
June 8, 2016	Wednesday		8:00AM-4:30PM	8
Description of Work	struct to red my m	say I still do not follow ure of our asset tracki lesign the database ag otivation down. I utili	g a phone call with the with the with the logical reasoning ing database. My configain, moving into versitized concepts learned 13, by employing a rise	fusion has led to me ions 0.3.1+ driving from my project

deciding the time constraint was more important than the complexity of the backend. After all, we do have an existing tracking system, and despite its flaws we still need to deliver on our goal to reduce the receiving process.

The local database was seen more as a flashy piece for potential growth of the project, given it was liked by senior management. Implementation of the backend would not only assist in better tracking, but also present a bold initiative for expansion. At the current point in time I had not yet given up on the database and continued to improve the design over time as new information was obtained.

Date		Day of Week	Time	Hours	
June 14, 2016		Tuesday	8:00AM-4:30PM	8	
Description of Work	I have received a plethora of detailed information from our vendors				
	showi	ng reports of equipm	ent that has previously	y been sent to our	
	team. Our recent progress meeting with our management shed				
	on sh	ifting the responsibili	ty of tagging equipme	nt to the vendor.	
	This was not an option we had previously discussed and in a way				
	a nail into the coffin of the database design, but given its ps				
	status I decided to push on with learning the existing system				

The vendors and I worked to normalize data presented to us as there was still a bit of ambiguity as to what barcodes on the outside of equipment boxes should be tagged into which field. Often I would find the serial, model, and machine type pieces joined into a single string when I was designing a database that stored these pieces of information separately for reporting purposes. Overall, there was more discussions to be had regarding the idea from management and the continuation of the database.

Management also suggested using Access to approach the database "dilemma" as it provides an easy-to-use interface for front-end data gathering. However, our original idea consisted of only one front-end, the mobile device, therefore I was able to communicate the advantages of using an enterprise application and how it aligns with our vision.

Communication was key during these times since a pivotal piece of information was conveyed to my team in the latest progress meeting. Not only was my team looking to reduce the receiving process, but management was also looking into ways to

utilize the vendors which I did not know was feasible. Because of this, I learned how crucial business relationships are with vendors and why it is important to understand these relationships. As noted before, I am constantly pursuing improvement in my communication skills.

Date	Day of Week	Time	Hours
June 17, 2016	Friday	8:00AM-4:30PM	8

Description of Work

Recently I've begun work on the PHP web service aimed at transmitting and formatting data received from the mobile app to be uploaded into the database. I have created a second VM with Windows Server 2012 R2 and will begin setting up for web service use. Learning a language's syntax and fully implementing these ideas will prove to be a great challenge, but I still have time left and I am determined to use the web services.

By utilizing web services, my team envisioned moving the team towards more of an Enterprise 2.0 environment. We are embracing mobile technology and expandable means of communication and data storage. The database is moving into the 0.5.0+ versions now as

I prep for the final draft. Complexity of the PHP web services lie in the way of the final database design draft and full implementation.

Date	Day of Week	Time	Hours
June 21, 2016	Tuesday	8:00AM-4:30PM	8

Description of Work

During our most recent progress meeting, management confirmed the movement to having the vendors tag equipment pre-shipment.

To reduce the time of opening each individual box, management's idea also includes the vendors labelling the boxes with identical barcodes to the FMOLHS asset tags. This would enable our AA to quickly scan through orders to ensure we are receiving exactly what the vendor ships.

The difficulty of the web services is beyond what I initially projected, therefore I am communicating more with the vendors and DBA after the division of our backup plan. My teammates mobile app is on schedule for testing and communication has been confirmed from the device to the service, and from the service to the database, however transmitting and uploading are having problems.

Date		Day of Week	Time	Hours	
June 22, 2016		Wednesday	8:00AM-4:30PM	8	
Description of Work	After tireless efforts to build the PHP web services, we are running I on time and the app needs to proceed into testing. The skeleton				
	code I have completed works with single-table input, however				
	for str	ucturing for a multi-t	able upload have faile	d. At this point I	
	have a	vorking towards a			
	single-table database for use. Although I			feel comfortable	
	subm	itting a mediocre imp	lementation of our ori	ginal ambitious	
	plans.				

Date		Day of Week	Time	Hours
June 24, 2016		Friday	8:00AM-4:30PM	8
Description of Work	approphase comm	eaching and the mobile yet due to the prolonumications. We are a	ginally scheduled for Jobson good experience with the siming to either completes or strike the plans for track to reduce the resetting our goal.	esting its database ete the database om the end goal.

Date		Day of Week	Time	Hours	
June 27, 2016		Monday	8:00AM-4:30PM	8	
Description	My te	am has been gatherir	ng as much progress in	formation as we can	
of Work	for ou	ur final presentation a	Ithough we are abando	oning the backend as	
	101 00	ii iiiai presentation a	ithough we are abando	offiling the backend as	
	it is unfinished. Truly I am disappointed I was unable to implement				
	my flashy backend, but overall I have been able to communicate with				
	severa	al positions througho	ut the corporation's de	epartments.	

Understanding your limitations is extremely important when conveying your initial ambitions with a project in my opinion. If you are able to truly understand your limits you are able to give a more accurate depiction of what you can get accomplished, especially when put under a time constraint. From this project I have learned computer science concepts such as version control and web service integration, as well as reinforcing my understanding with server virtualization. I've had the pleasure of applying database processing and design concepts learned in ISDS 3110 alongside project management techniques learned in ISDS 4113. I am extremely grateful for the opportunity to participate in the condensation of bloated processes.

Date	Day of Week	Time	Hours
June 28, 2016	Tuesday	8:00AM-4:30PM	8

Description of Work

Final Progress Meeting/Project End

Today is scheduled to be our last meeting regarding the project. To be honest, I am quite upset I was unable to fully implement the backend, however we are still meeting our goal.

The meeting went extremely well, and our final date is getting pushed back until the 12th of July for testing. Not to mention we are still awaiting the creation of our service account which we requested about two weeks ago. I am concerned we may not be able to obtain the account credentials until after testing, but I will speak with the director again to ensure the request gets pushed through. Thankfully, my teammate has the email system set in place and tested, we will just need to change the names on the account to utilize the service account effectively.

Date	Day of Week	Time	Hours
July 1, 2016	Friday	8:00AM-4:30PM	8

Description of Work

I finally obtained the credentials for the service account and my teammate has already switched the accounts. We began testing, and I've ensured the data gathered is in the necessary format per our DBA for uploading into CMDB. For testing a week of time remains given the upcoming holiday, and we are sure the new process flow will become streamlined to our projected condensation.

The vendors have also been condensed to a primary and backup since the data received was wildly different (one grouped a lot of device information into one long string delimited by hyphens, whereas the now-primary vendor reported data in the format we asked for). At this point the web services and database implementation have come to a screeching halt, though they are extensively documented in case we have time later to resume the project.

Date		Day of Week	Time	Hours			
July 12, 2016		Tuesday	8:00AM-4:30PM	8			
Description of Work	New Final Progress Meeting/Project End						
	Testing proved the precision of our initial projections and everythin is up to par for full implementation. Our primary user, the AA, has tested the mobile app/sled combo noticing one bug and a mild workflow improvement, which my teammate was able to fix within						
	day.						
	The work we have done has exemplified our skills in a professional,						
	real-world aspect.						

Conclusively, the project met expectations of reducing the receiving time by 75% and has helped streamline the process by cutting out the pre/post-scanning Excel prep work. Our DBA has been able to successfully receive and upload the receiving data into CMDB without complaints. Though I was not able to fully implement my backend, we were able to pivot our ideas given the obstacles thrown at us (web services not uploading to multi-table design, vendors tagging equipment before shipment, etc.), and ultimately deliver the final product meeting original expectations. From this experience I have learned to apply the Enterprise Architecture equation (EA = Business + Strategy + Technology) to understand when it is necessary to take a project above and beyond, and when it is important to align with business needs without overcompensation. All

resources regarding the project have been extensively documented (troubleshooting, how to resume the project, thought processes) and placed on a shared folder for the local team. We are extremely grateful we were able to assist in moving the local organization to more of an Enterprise 2.0 approach to reducing redundant processes.

Summer Project: Summary

Below is a copy of the official summary of the project presented to upper management during the concluding presentation. By attaching this document, I aim to convey a comprehensive synopsis of the information provided in my daily summaries/after-thoughts.

Our administrative assistant's receiving process currently in use is bloated by the amount of user interaction with Microsoft Excel and a tethered scanner. The scanner is generally attached to a designated workstation-on-wheels (WOW) equipped with a laptop, thus hindered by short battery life of the laptop or the powered tether from the wall to the WOW. Further mobilizing this process through the utilization of mobile technologies such as smartphones and smartphone accessories is the primary goal of this project.

The mobile devices chosen in this project are an iPhone 5s/6/6s equipped with a Honeywell Captuvo SL22 sled for healthcare. By using the noted devices, a custom iPhone application is required to utilize Captuvo's scanner SDK and app store-supplied Captuvo

firmware in order for the sled to properly capture barcodes. The custom application will then be used to scan devices' serials and asset tag numbers, and prepare a CSV file with all of the fields required by CMDB for upload. These results can be emailed to the user for review and submission to the CDMB database administrator.

It was originally planned that the results outputted from the application into a MySQL database. After careful consideration with regards to time constraints and data transmission channels the idea was scrapped due to the inability to successfully securely send, capture, import, prepare Excel file for CMDB, and consistently read data on the app. The database was designed and optimized for the applications needs, however, since the means to communicate were not able to be implemented the database will now be bypassed. Since the database was hosted through a virtual server cultivated on a private network it will not affect the existing infrastructure.

Given the strict timeline of the project and ever-changing environment, we believe great progress has been made to profitably reduce the receiving process. With the copious amount of upcoming shipments, we find that it be imperative to test the application by shadowing and self-performance; using both Honeywell sleds. The testing phase will ultimately shed light on problem areas and areas that require tweaking for growth, thus enabling us to finalize the format of data received from the vendors. From this point we can continue to streamline the project by securing more data from the vendors for CMDB in the event we move to an assettracking system utilizing CMDB as the backend, or writing a site with a primary purpose of converting templated CSV files into a CMDB Excel file. Preparing a tool to convert vendor data into the template required for CMDB will be beneficial when the mobile devices used for the project will no longer be compatible/feasible.

Conclusively, we would like to thank you for the opportunity to learn the inner workings of a fast-paced, ever-changing corporate healthcare atmosphere, while also gaining skills we will take with us into our careers. We've learned that we must be open to change and adapt to the tools provided rather than attempting to reinvent the wheel, and without the proper guidance we would be without direction diving into a project we oversold, to accomplish a feat of lesser relevancy.