Project Charter

Smart Inventory System (SIS)

Marco Fisico, Mayis Mammadov, Samuel Trask
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The first four sections of the document will overview the SIS. The Smart Inventory System (SIS), by Automatic Inventory Systems, will provide a more accurate and efficient way of conducting daily inventory, and allow managers to focus on more important tasks. It will also speed up the ordering process by providing an intuitive user touch interface. The user interface will connect with a hardened server in the manager’s office, giving them a live view of the current inventory status of their store and the ability to update and add items to the database.

Work on the project will commence on January 7, 2013, and will be complete on April 12, 2013. Work on the project will occur in the following order:

1. Acquire Material
2. Configuring Linux Server - Boot Thin Clients
3. Configuring Windows server – Remote desktop
4. Create Database
5. Create Menu Application
6. Create Database Management Application
7. Connect Applications to Database
8. Decorating
9. Documentation
10. Final Testing and Confirmation

Section seven outlines the project team members and their roles. The project team consists of three people; Samuel Trask, Mayis Mammadov, and Marco Fisico.

Mayis will be responsible for creating the project webpage, the majority of the documentation, and the decoration of the project.

Sam will be responsible for configuring the Linux server, booting the thin clients, and securing the servers.

Marco will create both applications, configure the windows server, and create the database for the barcode scanner.

Some risks that may affect our project include inadequate communication between team members, conflicting priorities between team members, procrastination due to other course load and any physical failures of hardware.

The SIS system will be composed of the following components:

**Hardware:**
- 2 Thinclients
- 2 Regular Monitors
- 1 Touch Screen Monitor
- 2 Servers
- Switch
- Router
- KVM Switch
- Mobile Server Rack
- Barcode Scanner

**Software:**
- Windows Server 2008 R2
- Visual Studio 2010
- Xubuntu Linux
- DRBL
- MySQL Workbench

The budget for the MSIS amounts to $54,324 with equipment and operational costs, and totals up to $65,189 with our 20% contingency budget, which may be used in the event of an unfortunate event.
In the event that the MSIS becomes profitable, the team members will split profit 33.33%, unless a team member is removed from the team or sells and distributes their portion.

## Section 2 Project Vision

Our Smart Inventory System (SIS) is designed to simplify the inventory process of fast food restaurants. This will allow managers to focus on more important tasks, rather than taking manual inventory. It will decrease hours of labour for cashiers as the order processes is now automated, fast and accurate.

To add items to the inventory, the manager will have to scan three barcodes into a desktop application, which will correspond to the quantity of boxes received. The number of boxes will then be added to the inventory database stored on the windows server. The scanner will be connected to a thincient pc, which will be connected to a secured server. The manager's pc will be a thincient booting off the DRBL server and then running remote desktop session to a windows server.

The POS system will be a second thincient booting from DRBL and running a remote session to a windows server. A touch screen application that is easy to use will be presented to customers for fast and accurate self-serve ordering. The system will automatically subtract items that are purchased from the database.

## Section 3 Project Purpose

We began by considering the following problem. How could we simplify and increase the accuracy of inventory management and order taking for a fast food restaurant. Currently some restaurants use outdated and time consuming inventory systems and traditional cashier order taking, methods that are inaccurate and inefficient. We decided to create an inventory system linked with a POS system that will speed up inventory management and ordering in fast food restaurants.

We will endeavor on our project upon the start date of our final semester at SAIT Polytechnic. It will require four months to complete our SIS. The final complete project will ultimately achieve the goal of creating a modern simplified and more efficient computerized inventory and POS system for fast food restaurants.

### Problem/Opportunity

With our SIS, we will simplify the inventory and ordering process at fast food restaurants by eliminating problems such as:

- Decreased productivity of the shift manager
- Inaccurate manual inventory count
- Spending an hours on daily inventory
- Inaccurate/misheard orders

### Project Description

The SIS will increase efficiency of order taking and inventory management by eliminating the need of a daily manual inventory count and eliminating an inaccurate, slower cashier.
To check inventory levels, the manager will only need to look at perpetual inventory and confirm it with a walk for five minutes each day by selecting a random item and confirming the perpetual inventory matches the actual inventory.

The self-serve systems will allow customers to make orders using touch screen menu’s that they are familiar with on modern smartphones, tablets etc.

Current Situation

Most restaurants are using dated inventory systems that require more human interaction and are inefficient and inaccurate when compared to modern systems. Also the majority of restaurants use cashiers, who must interpret a customer’s order and type it in for them, perhaps inaccurately and much more slowly than a customer could do themselves. Inaccurate and slow ordering can provide a bad experience, which may cause a customer not to return.

Key Stakeholders

Our SIS project will impact the following significant stakeholders:

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Manager</td>
<td>Mayis, Sam, Marco</td>
</tr>
<tr>
<td>Client</td>
<td>Colin Chamberlain</td>
</tr>
<tr>
<td>Performing Organization</td>
<td>Automatic Inventory Systems</td>
</tr>
<tr>
<td>Sponsor</td>
<td>Colin Chamberlain</td>
</tr>
</tbody>
</table>
The SIS will essentially save restaurant employees time by eliminating daily inventory counts and the manual order taking process:

Scope

**Major deliverables:**

- SIS, which is composed of:
  - Linux Server
    - DRBL
  - Windows Server
    - Remote Desktop
    - Active Directory
    - DNS
    - MySQL
  - Thinclient and touchscreen customer user interface
    - Boots off DRBL
    - Runs Remote Desktop to Windows Server
    - Runs POS terminal application for ordering
  - Managers Thinclient
    - Boots off DRBL
    - Runs Remote Desktop to Windows Server
    - Runs DBM (Database Management Software) for viewing, editing and adding to the database of inventory

**Work phases:**

- Acquiring Materials
- Thindient booting Linux via DRBL
- Thindient connecting to RDP session of Windows
- Fully functioning Database Management Application, which can view, edit and add to the database
- Fully functioning and user friendly Menu Application for self-service ordering
- Testing of complete SIS

**Interim deliverables:**

- Creating application
- Configuring servers to boot thin clients
- Configuring servers to remote desktop windows

**Out of Scope**

- Punch clock for employees
- Printing of receipt after order completion
Section 5  Project Objectives

Boot thin client from Linux server by February 28, 2013 - Responsible: Sam
Create Menu Application by February 28, 2013 - Responsible: Marco
Create Database Management Application by February 28, 2013 - Responsible: Marco
Demonstrate SIS system can decrease inventory time April 8, 2013 - Responsible: Mayis
Test barcode scanner can and DBM can update to database accurately March 3, 2013 - Responsible: Marco
Servers pass security testing April 8, 2013 - Responsible: Sam

Section 6  Terminology

- ADDS  
  o Stands for Active Directory Domain Services. Microsoft technology used to centrally manage users on a network
- Barcode scanner  
  o A scanner that uses lasers to read tags composed of parallel lines that represent encoded numbers.
- C#  
  o A programming language used to create the Menu Application and DBM Application
- Database  
  o Where all data is stored in proper and secure manner
- DBM  
  o Stands for Database Management Application. C# based application is used to view, edit and update the restaurant database
- Menu Application  
  o C# based application used in the touch screen, self-serve ordering system
- RDS  
  o Stands for Remote Desktop Services. Connecting to a computer through a network and control it remotely
- SIS  
  o Stands for Smart Inventory System
- Server  
  o A computer that is designed for constant operation and will typically serve out webpages and databases.
- SQL  
  o A standard language for accessing and maintaining databases
- Thinclient  
  o A computer that is composed of only what is needed to interface with a server. It doesn't think for itself, the server will control its every action.
- Visual Studio  
  o Development kit made by Microsoft to make development and coding of applications easier
The following is a list of our team members and the roles that they have been assigned to:

<table>
<thead>
<tr>
<th>Member</th>
<th>Role</th>
</tr>
</thead>
</table>
| Mayis  | -Creating webpage for proj354.com  
          -Installing touch screen  
          -Creating Power Point  
          -Decorating project |
| Sam    | -Physically installing components of SIS  
          -Booting thin clients  
          -Securing Server |
| Marco  | -Creating DBM  
          -Coding Menu Application  
          -Create database  
          -Configure ADDS  
          -Construct RDS environment |

This is a list of stakeholders:

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Role or Influence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fast food restaurants</td>
<td>May want to adopt a similar inventory system for their stockrooms</td>
</tr>
<tr>
<td>Grocery Stores</td>
<td>May want to implement our inventory system</td>
</tr>
<tr>
<td>Restaurant Supplier</td>
<td>Will have to create barcodes based on quantity of boxes ordered.</td>
</tr>
</tbody>
</table>
## Risk Assessment

The subsequent table outlines the possible risks, their outcomes, and mitigation strategies for our project:

<table>
<thead>
<tr>
<th>Risk</th>
<th>Probability</th>
<th>Impact</th>
<th>Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inadequate communication between team members</td>
<td>Low</td>
<td>Medium</td>
<td>Meetings each week or whenever needed</td>
</tr>
<tr>
<td>Conflicting priorities between team members</td>
<td>Medium</td>
<td>High</td>
<td>Discuss issues honestly and come up with a compromise</td>
</tr>
<tr>
<td>Procrastination due to other course load</td>
<td>High</td>
<td>High</td>
<td>Develop better time management and organize priorities</td>
</tr>
<tr>
<td>Physical failure of project components such as loss of data, server failures, computer failures</td>
<td>Low</td>
<td>High</td>
<td>Redundancy of data, run server with RAID 5 or 6, have backup computers, and extra money for purchase of new equipment if needed</td>
</tr>
</tbody>
</table>

## Project Schedule

Our project schedule has been created in Microsoft Project 2010 in the form of a Gantt Chart. See the attached Gantt Chart for our project schedule.
Section 11

Project Facilities and Resources

Facilities:

- Project room MD 213 - existing

Equipment:

Hardware:

- First Thinclient Provided By Mayis and Marco
- Second Thinclient Provided By Glen
- 2 Regular Monitors Provided By Colin
- 1 Touch Screen Monitor Provided By Colin
- Custom Server Provided By Colin
- Dell Server Provided By Marco
- Switch Provided By Colin
- Router Provided By Colin
- KVM Switch Provided By Colin
- Mobile Server Rack Provided By Colin
- Barcode Scanner Provided By Colin

Software:

- Windows Server 2008 R2 Provided By SAIT MSDNAA
- Visual Studio 2010 Provided By SAIT MSDNAA
- Xubuntu Linux Provided By xubuntu.org
- DRBL Provided By Clonezilla website
- MySQL Service Provided By mysql.com
- MySQL Workbench Provided By mysql.com

Section 12

Project Budget

We developed our budget to produce the SIS system at the lowest cost possible. The estimated project cost was $65,189; this is based on a projected cost of $54,324 for equipment and operational costs as well as a $10,865 contingency budget in the event of unforeseen circumstances.

Our equipment costs were determined based on the quotes found from [HW_REF1, HW_REF2, HW_REF3]. The server was chosen because of its small size in an office, similar to a desktop PC. We chose to go with a Windows 2008 R2 server because of its Client Remote Desktop ability, very useful when we need thin clients running GUI enabled remote desktop sessions over the server.

Our operational costs were generated based on the projected time investment from the task required for developing the SIS, as seen on the Gantt chart in Section 10. A fund of $16,990 is reserved for the hiring of additional hands if the project encounters failure or starts to fall behind schedule.
Equipment and Facilities

The following equipment will be provided either through SAIT or team member Marco Fisico:

<table>
<thead>
<tr>
<th>Item</th>
<th>Provided By</th>
<th>Type</th>
<th>Cost</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer 23” Touch Screen</td>
<td>SAIT</td>
<td>Hardware</td>
<td>$287.50</td>
<td>3</td>
</tr>
<tr>
<td>Motorola Symbol LS 1203 Scanner [HW_REF 3]</td>
<td>SAIT</td>
<td>Hardware</td>
<td>$120.70</td>
<td>1</td>
</tr>
<tr>
<td>HP Thinclient [HW_REF 4]</td>
<td>Group</td>
<td>Hardware</td>
<td>$115.69</td>
<td>3</td>
</tr>
<tr>
<td>Contingency Budget</td>
<td></td>
<td></td>
<td>SUB-TOTAL: $4,824.59</td>
<td></td>
</tr>
</tbody>
</table>

| Operating Costs |

These operating costs are based on 4 1/2 hours a day, 5 days a week, for 13 weeks:

<table>
<thead>
<tr>
<th>Item</th>
<th>Hours</th>
<th>Rate</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marco</td>
<td>300</td>
<td>$55</td>
<td>$16,500</td>
</tr>
<tr>
<td>Mayis</td>
<td>300</td>
<td>$55</td>
<td>$16,500</td>
</tr>
<tr>
<td>Sam</td>
<td>300</td>
<td>$55</td>
<td>$16,500</td>
</tr>
<tr>
<td>Contingency Budget</td>
<td></td>
<td></td>
<td>SUB-TOTAL: $49,500</td>
</tr>
<tr>
<td></td>
<td></td>
<td>20%</td>
<td>$59,400</td>
</tr>
</tbody>
</table>
Promotion and Communication

We are not bound by a non-disclosure agreement with respect to a sponsoring organization; however, we will abide by the following terms of engagement between team members and stakeholders:

- From project conception to completion, confidentiality with relation to project content will be maintained between all group members and stakeholders, largely key stakeholders. We will solitarily dialogue project plans, work breakdown structures, and project scheduling amongst group members and key stakeholders.

Communication between group members will be achieved at minimum, every two days. Communication will be maintained via contact in person, by phone, email and text message.

Intellectual Property

In the event that our product becomes successful and offers any form of monetary gain, we will split any monetary gain that may come about by splitting profit 33.333% per group member. If there is no profit made from the product, then all group members will look upon any party/group member using any/all of the final deliverables with indifference.

The following would be exceptions:

- A team member provides a written statement, in which he distributes his IP to another member(s)
- A written statement in which a member sells their IP to the remaining member(s)
- A team member is removed by the group due to a vote of ejection
Offer

We at Automatic Inventory Systems will be creating a complete inventory and POS system, accessible through a thin client booking with DRBL and running a remote desktop session to windows server. We will produce two secured servers to track inventory, boot thin clients, run remote desktop sessions and use a touch screen to make customer ordering easier. All work in scope will be completed in accordance with our project charter and out of scope work will be completed as time permits.

Approvals

Automatic Inventory Systems seeks the approval of our client, Colin Chamberlain, to proceed with the completion of the Smart Inventory System (SIS) and associated instruction manual.

Project Charter Signoff

<table>
<thead>
<tr>
<th>Offering</th>
<th>Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sam Karl Trask</td>
<td>Sam</td>
<td>March 11, 2013</td>
</tr>
<tr>
<td>Mayis Mammadov</td>
<td></td>
<td>March 11, 2013</td>
</tr>
<tr>
<td>Marco Adriano Fisico</td>
<td></td>
<td>March 11, 2013</td>
</tr>
<tr>
<td>Approval</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Colin Chamberlain</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
