1. Consignor / Exporter

Bugsy and Sisters

2. Ref.No : CE322

Certificate of Origin

National Chamber of Exporters of Sri Lanka

No 532/4K, Sirikotha Lane, Galle Road, Colombo-03
Sri Lanka
Phone- 0094-11-4651765
Fax- 0094-11-2372818
E-mail - nce@nce.lk, nce.dco@gmail.com
Web- www.nce.lk

3. Consignee

Consignee

4. Invoice No : Inv4500

& Invoice Date : 17/11/2016

7. Country of Origin

SRI LANKA

5. Port Of Loading	Galle	**6. Vessel**	Vessel09	**8. Port of Discharge**	Perth	**9. Place of Delivery**	Delivery

10. Goods/Item	**11. Shipping Mark**	**12. Package Typ/Qty**	**13. Summary Description**	**14. HS Code**	**15. Qty & Units**
Trousers Shirts				4555	200

For Office Use Only

REGISTERED

We Certify that goods mentioned herein are of Sri Lankan origin

Authorised Signatory
National Chamber of Exporters of Sri Lanka

DRAFT

16. Total Invoice Value

1000

17. Total Quantity

500

I declare that the goods are of Sri Lanka origin,all particulars above are correctly stated,and that the minimum value addition of goods exported is not less than 25% of the FOB price

Competent Authority - National Chamber of Exporters of Sri Lanka		**Submitted by**	
Name of NCE Authorized officer Lusifer ddfds	Contact No +94 114651765	Name & Designation Dileepa Pinto-Cordinator	Contact No 0112291706
Date	Signature of Authorized Officer -	Date 25/11/2016	This is a computer generated document **No signature required**

1. Consignor / Exporter

Bugsy and Sisters

2. Ref.No : CE321

Certificate of Origin

National Chamber of Exporters of Sri Lanka

No 532/4K, Sirikotha Lane, Galle Road, Colombo-03
Sri Lanka
Phone- 0094-11-4651765
Fax- 0094-11-2372818
E-mail - nce@nce.lk, nce.dco@gmail.com
Web- www.nce.lk

3. Consignee

Consignee

4. Invoice No : NB200

& Invoice Date : 17/11/2016

7. Country of Origin

SRI LANKA

5. Port Of Loading	Colombo	**6. Vessel**	vessel67	**8. Port of Discharge**	Perth	**9. Place of Delivery**	Colombo

10. Goods/Item	**11. Shipping Mark**	**12. Package Typ/Qty**	**13. Summary Description**	**14. HS Code**	**15. Qty & Units**
Trousers Shirts				HS200	200 300

For Office Use Only

REGISTERED

We Certify that goods mentioned herein are of Sri Lankan origin

Authorised Signatory
National Chamber of Exporters of Sri Lanka

16. Total Invoice Value

2000

17. Total Quantity

100

I declare that the goods are of Sri Lanka origin,all particulars above are correctly stated,and that the minimum value addition of goods exported is not less than 25% of the FOB price

Competent Authority - National Chamber of Exporters of Sri Lanka		**Submitted by**	
Name of NCE Authorized officer Lusifer ddfds	Contact No +94 114651765	Name & Designation Dileepa Pinto-Cordinator	Contact No 0112291706
Date	Signature of Authorized Officer -	Date 25/11/2016	This is a computer generated document **No signature required**

Access Control System

Based on face recognition & password authentication

Final Project Proposal (BCO6010)

Student Name: G.M. Tharaka Madusanka

STUDENT ID: 20090943

Table of Contents

1. Introduction

Since the beginning of the mankind, humans have struggled with the problem of protecting their assets. To reduce this earlier they use post guards but now we realized that the human guard is an inefficient and ineffective way of protecting resources.

The creation of secure place like rooms without windows or adding lock and key was a small but very effective move. Those who has the authorized access to project the assists were given keys, which was the beginning of an era of identification of authorized access. Over the years the lock and keys were successively improved to provide better security. But when the key was lost or stolen the only solution was to replace the lock and all of the keys.

Then the electronic locks which controlled by card readers with plastic card as keys came. The great advancement was the capability of removing the lost or stolen key cards electronically. So there were no locks or key had to be changed. But as time passed we realized that the protected assists were removed before the authorized person even realized that his or her cards were missing.

The solution of Personal Identification Number (PIN) keypad to the card reader was the solution to the lost or stolen card problem. But this solution was breakable by guessing the PIN because the some people use their birthdays, anniversaries etc. as their PIN.

The only way to truly identify and authenticate and grand the authorized personal was to base on the physical attributes of the person themselves. Biometric identification using human hand, face, eyes.

2. Current situation leading to problem identification

Access control is a security method which can used to regulate who or what can view or use information or resources in an environment. The problem of access control in a hierarchical organization consist of the management of the information among a number of users who are divided into different security classes according to their information access levels.

It is obvious that controlling the access to confidential physical building or information system or databases etc. for example research laboratories which funded by the government or private organizations has lot of sensitive research information. The confidentiality such premises is of prime important for the benefit of society. The use of password or identification card for authentication mechanisms have proved unreliable. At such time it becomes necessary to ensure high level authentication and authorization of personnel entering such facilities.

Supplying a correct password does not prove an individual is who he/she says he/she is. A biometric solution is expected to solve these kind of access control problems.

Throughout the years face recognition has become an important research area because of its usefulness in many application areas. A face recognition base access control system can be used to allow access to computers, to control entry into restricted areas etc. It is one of the most popular authentication methods in biometric technology.

In this project a face recognition system is implemented and integrated into an Access Control system which can be used to secure information system, company server rooms etc. The confidentiality of such premises is of prime importance for the benefit of the society. At such time it becomes necessary to ensure high level authentication and authorization of personnel entering such facilities or systems.

3. Proposed technique to solve the current problem

Here I propose a system that combines two different forms of authentication techniques to ensure only authorized persons access the information. The proposed system integrates biometrics with secure password to create a dual secure high end security system. The system first checks if the persons face is registered as an authorized personnel in its database. If the face matches, the person is allowed to go to the next stage. At this stage the user needs to enter his or her authentication password into the system. If the user password associated with the detected user face is true, that particular user is then granted access. Else if the authentication fails at even one stage the user is not allowed to enter the certain restricted areas or resources.

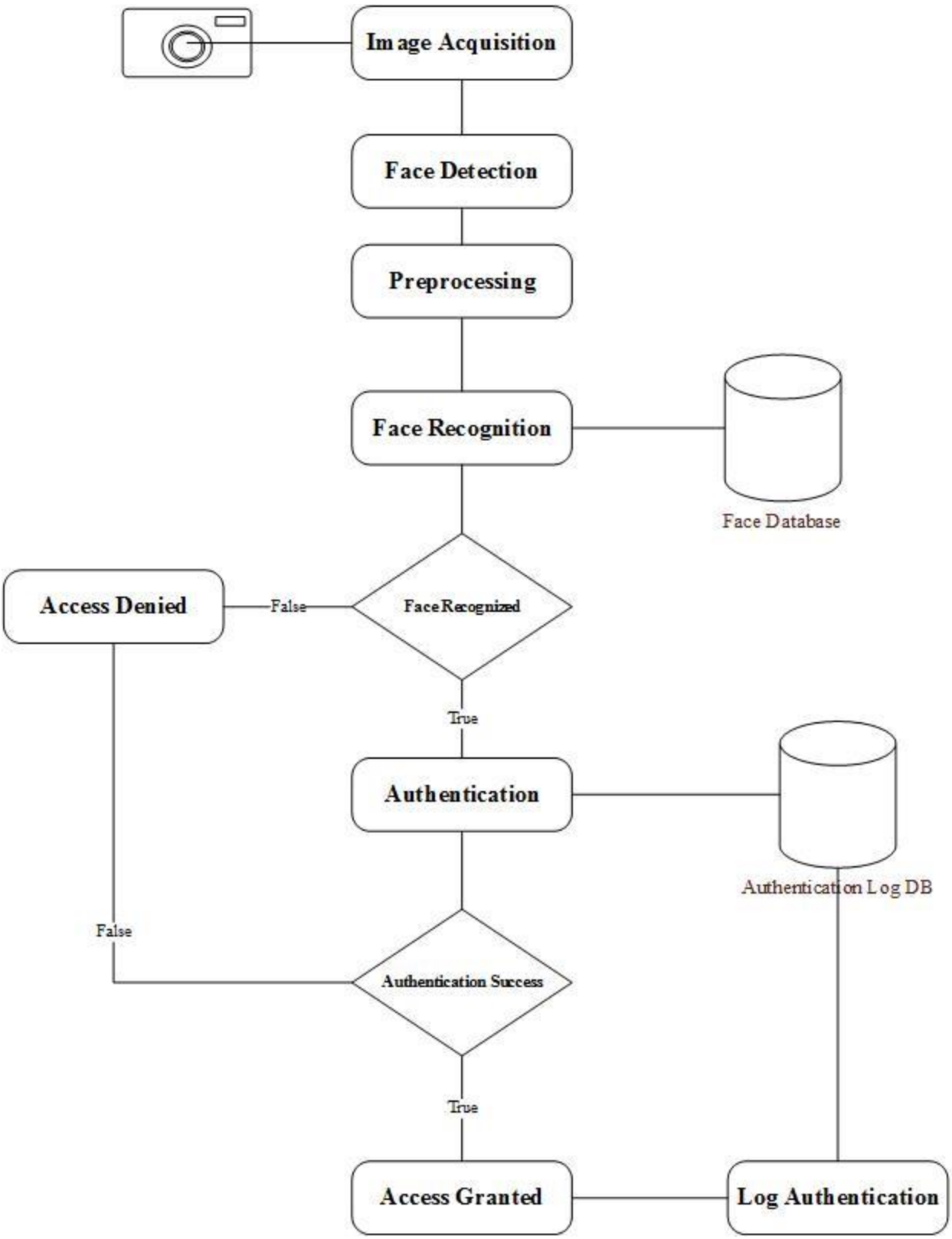


Image Acquisition
Face Detection
Preprocessing
Face Recognition
Face Database
Face Recognized
False
Access Denied
True
Authentication
Authentication Log DB
False
Authentication Success
True
Access Granted
Log Authentication

3.1.Face detection difficulties

3.1.1. The face global attributes

All the human have common face attributes. But there are thin faces, round faces etc. and the skin color is also different from one person to another.

3.1.2. The facial expression.

Face appearance is highly depends on emotional state of people. Face features of a smiling face is far from those of an indifferent temperament or a sad face.

3.1.3. Presence or absence of structural components.

Face detection included objects that can be found on a face. Glasses which change one of the main characteristics of the faces, the darkness of the eyes. Natural facial features: beards, mustaches or can occult part of the face.

4. Feasibility

4.1.Legal Considerations

When considering the legal requirements there may be some factors that we need to consider when deciding upon the security, access and information management.

The Data Protection Act of 1984 is explained by Sizer and Newman state that an individual is entitled to be informed by anyone who holds any personal data about them, to have access to that data, and to correct or erase that data if appropriate. The Data Protection Act 1998 updates its predecessor by adding that the individual also has the right to know the purpose for which the information is being processed as well as who may receive this information. However, it also states that the person holding the data only needs to disclose this if they have received a written request and are satisfied as to the identity of the person making the request.

The Computer Misuse Act 1998 states that any person is guilty of an offence if

1. 'He causes a computer to perform any function with intent to secure access to any program or data held in any computer
2. the access he intends to secure is unauthorized; and
3. he knows at the time when he causes the computer to perform the function that that is the case.'

Any person found guilty of such an offence can be imprisoned or fined. Therefore anyone, whether they be employee or not, found attempting to gain access to information on a system for which they do not have access may be prosecuted.

4.2.Economic Considerations.

Much of the cost of system integration will be down to the purchase of cabling, switches, cameras, and routers etc. All of these pieces of equipment will be needed for the solution. And it is possible that these may be more expensive as newer technology is often more costly. The integrated Access control solution may also require some investment in staff training. This may include training security personnel how to navigate and use a directory server application, and training the administrative team on the requirements of the new security technology.

4.3.Technological Considerations

For the implementation of this system the below hardware and software requirements.

Computer Hardware Specification.

- Intel Core i5 processor
- 4 GB RAM
- 1 TB Hard Disk
- 19 Inch Touch Monitor
- High resolution camera

Software Specifications

- Windows 7 Professional
- ESET virus guard
- MS Office
- MS SQL server 2012
- .Net Framework 4.5 of higher

5. Project Objective

The objective of this project is to design a security system for access control using a face recognition. The main advantage of this project is a higher degree of security system for access control system is going to be developed. The problems consist with existing security systems such as stolen of ID card and keys can be solved thorough the implementation of the face recognition system for access control.

Through the implementation of this access control system we want to address the following goals.

- Increase the security of the client assets.
- Limit the personal who access the assets
- Identify the user who access the system
- Provide a user friendly interface design.

- Increase customer satisfaction.

6. Scope of the Software Solution

- ✓ Face Detection
- ✓ Face Recognition
- ✓ User authentication
- ✓ User authentication log

When the user faces the camera, standing about two feet from it. The system will locate the user's face and perform matches against the facial database. It is possible that the user may need to move and reattempt the verification based on his facial position. The system usually comes to a decision in less than 5 seconds. After the system identified the user the next stage is to input the authentication password. If the password is correct the system will grant access to the user.

6.1.Selected SDLC Model

We decide that the software Application needs to build according to the Prototyping Model. Because the system need to be implemented in less time period. This model enables to understand customer requirements at an early stage of development. It helps get valuable feedback from the customer and helps software designers and developers understand about what exactly is expected from the product under development.

Prototyping Steps

- ❖ A preliminary project plan is developed.
- ❖ An partial high level paper model is created
- ❖ The model is source for a partial requirements specification
- ❖ A prototype is built with basic and critical attributes
- ❖ The Developers builds the database, user interface, algorithmic functions.

- ❖ Demonstrates the prototype to the user, the user evaluates for problems and suggests improvements.
- ❖ This loop continues until the user is satisfied

7. Project deliverables

This project is divided into two main parts. The first part project document which focus on the research and literature review of the project, project management steps, diagrams etc. will be produced. And a small research on the previous face recognition project has been made in order to get an idea of the working principle of the system. The second part is the implemented software program for the face recognition base access control system.

- The Project proposal.
- Final report.
- The system
- User Manual and Technical documentation

7.1. Functionalities of the proposed solution

- ✓ **Image Acquisition and Face Detection**: The purpose of image acquisition is to seek and extract a region which contains only the face.
- ✓ **Preprocessing**: the acquired image is resized to a specific size and resolution.
- ✓ **Face Recognition**
- ✓ **User Authentication and Log**
- ✓ **View user log**
- ✓ **Add New Authorized Users**
- ✓ **Delete Users**

8. Resources Required

8.1.Hardware Requirements

- ✓ A personal computer (PC) that can satisfy the software requirements and webcam's requirements.
- ✓ A webcam.

8.2.Software Requirements

- ✓ Windows 7 Operating System
- ✓ Microsoft .Net Framework 4.0 or higher
- ✓ Visual Studio 2012
- ✓ SQL Server Management 2012
- ✓ Microsoft Office Package 2013(64bit)
- ✓ Open Source Computer Vision Library (Open CV - Emgu CV)

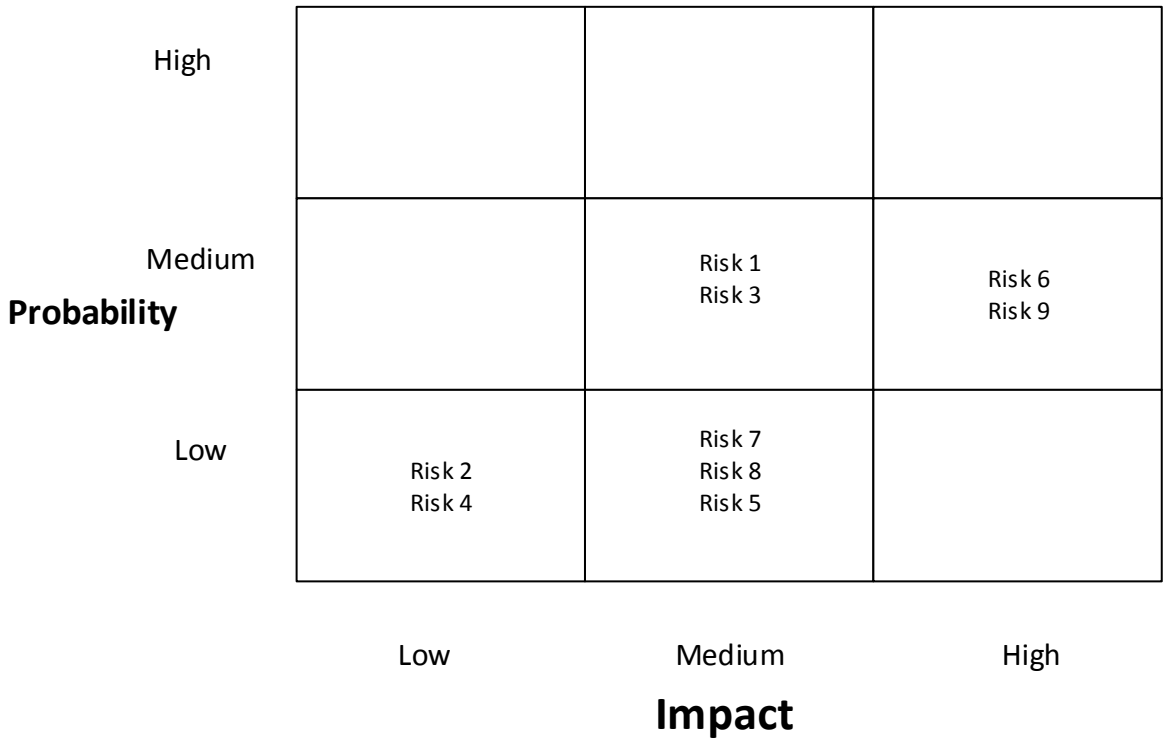
9. Limitations of the project

- ✓ Face recognition cannot be done on low light condition.
- ✓ User has to face directly to the camera to detect the face.
- ✓ Quality of the image effect the face recognition mechanism so a high quality camera should be use.

10.Risk Analysis

Risk list

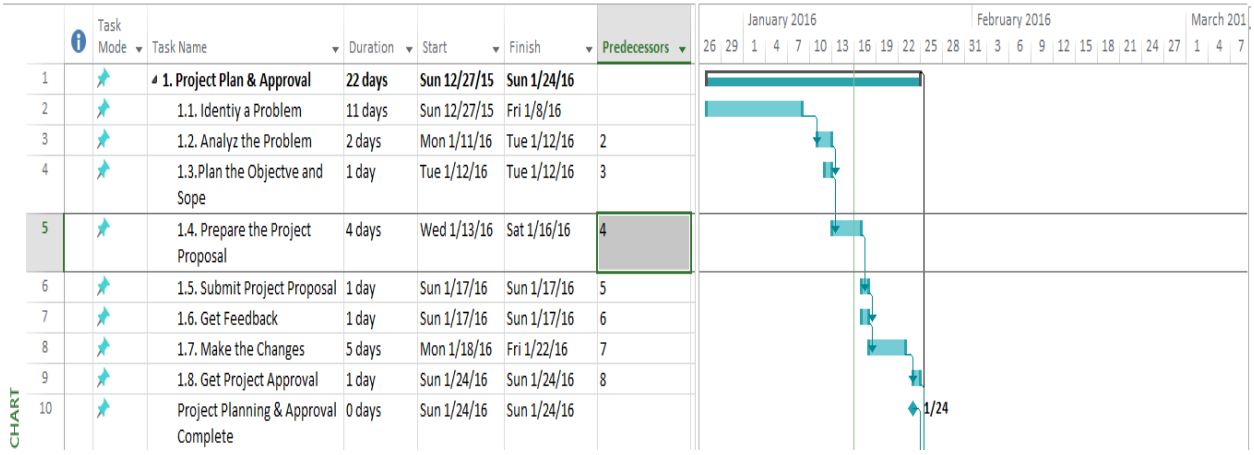
1. Cost Overrun
2. Low User Satisfaction
3. Project Time will go longer than expected(Additional time will be needed)
4. Lack of cooperation from users
5. Continually changing requirements
6. Inadequate estimation of required Resources
7. Unclear or misunderstood scope/objectives
8. Team members lack of specialized skill required by the project
9. Incorrect system requirements



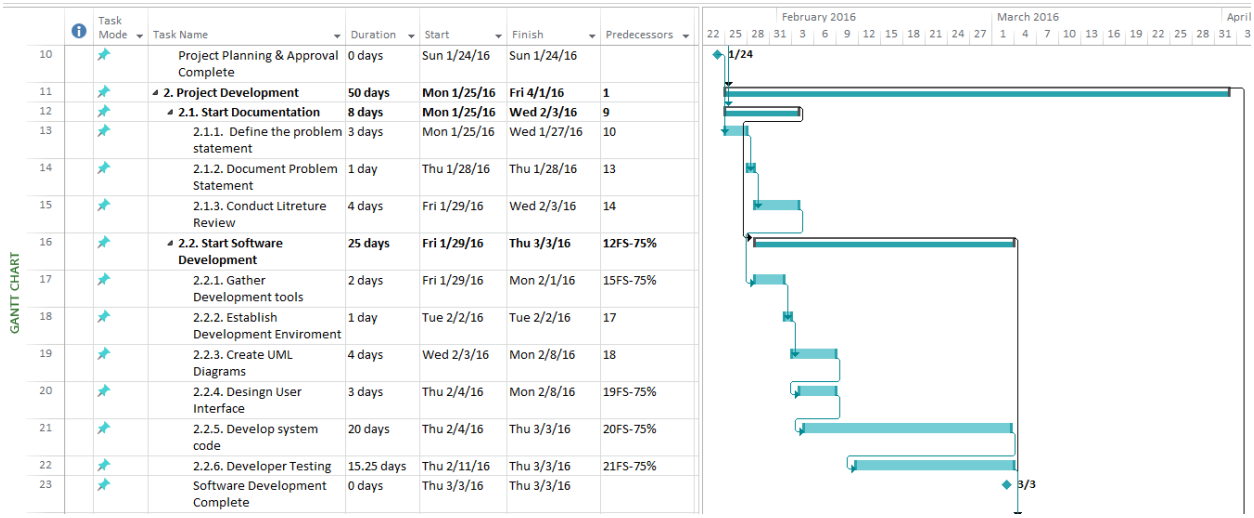
11.Time Plan for Implementation

Task Name	Duration	Start	Finish
1. Project Plan & Approval	**22 days**	**Sun 12/27/15**	**Sun 1/24/16**
1.1. Identify a Problem	11 days	Sun 12/27/15	Fri 1/8/16
1.2. Analyze the Problem	2 days	Mon 1/11/16	Tue 1/12/16
1.3.Plan the Objective and Scope	1 day	Tue 1/12/16	Tue 1/12/16
1.4. Prepare the Project Proposal	4 days	Wed 1/13/16	Sat 1/16/16
1.5. Submit Project Proposal	1 day	Sun 1/17/16	Sun 1/17/16
1.6. Get Feedback	1 day	Sun 1/17/16	Sun 1/17/16
1.7. Make the Changes	5 days	Mon 1/18/16	Fri 1/22/16
1.8. Get Project Approval	1 day	Sun 1/24/16	Sun 1/24/16
Project Planning & Approval Complete	0 days	Sun 1/24/16	Sun 1/24/16
2. Project Development	**50 days**	**Mon 1/25/16**	**Fri 4/1/16**
2.1. Start Documentation	**8 days**	**Mon 1/25/16**	**Wed 2/3/16**
2.1.1. Define the problem statement	3 days	Mon 1/25/16	Wed 1/27/16
2.1.2. Document Problem Statement	1 day	Thu 1/28/16	Thu 1/28/16
2.1.3. Conduct Literature Review	4 days	Fri 1/29/16	Wed 2/3/16
2.2. Start Software Development	**25 days**	**Fri 1/29/16**	**Thu 3/3/16**
2.2.1. Gather Development tools	2 days	Fri 1/29/16	Mon 2/1/16
2.2.2. Establish Development Environment	1 day	Tue 2/2/16	Tue 2/2/16
2.2.3. Create UML Diagrams	4 days	Wed 2/3/16	Mon 2/8/16
2.2.4. Design User Interface	3 days	Thu 2/4/16	Mon 2/8/16
2.2.5. Develop system code	20 days	Thu 2/4/16	Thu 3/3/16
2.2.6. Developer Testing	15.25 days	Thu 2/11/16	Thu 3/3/16
Software Development Complete	0 days	Thu 3/3/16	Thu 3/3/16
2.3. Conduct System Testing	**11 days**	**Fri 3/4/16**	**Fri 3/18/16**
2.3.1. Create Test Plan	1 day	Fri 3/4/16	Fri 3/4/16
2.3.2. Deploy System testing phases	10 days	Mon 3/7/16	Fri 3/18/16
2.4. Finalize Project Documentation	**19 days**	**Tue 3/8/16**	**Fri 4/1/16**
2.4.1. Identify and Define Risk of the project	2 days	Tue 3/8/16	Wed 3/9/16
2.4.2. Create User Manual	1 day	Thu 3/10/16	Thu 3/10/16
2.4.3. Finish Project Tasks	16 days	Fri 3/11/16	Fri 4/1/16
Project Completed	0 days	Fri 4/1/16	Fri 4/1/16
3. Final Project Submission	1 day	Mon 4/4/16	Mon 4/4/16

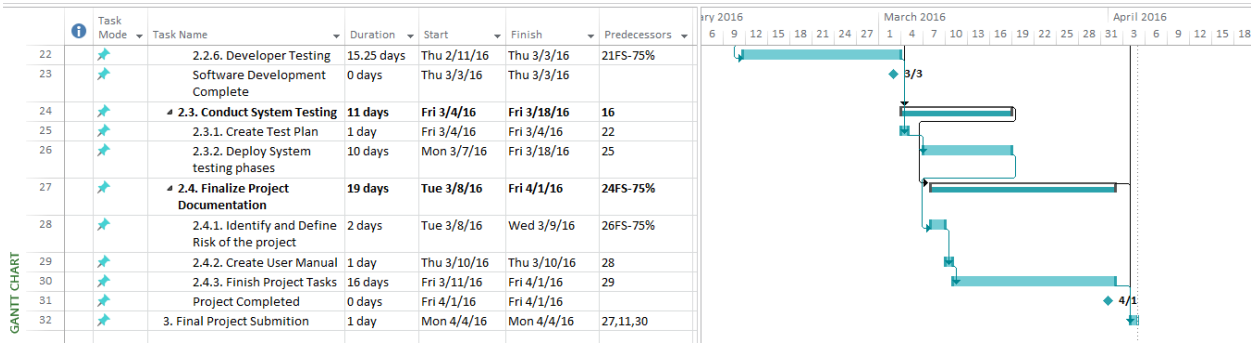
12. Gantt chart



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		**1. Project Plan & Approval**	**22 days**	**Sun 12/27/15**	**Sun 1/24/16**	
2		1.1. Identiy a Problem	11 days	Sun 12/27/15	Fri 1/8/16	
3		1.2. Analyz the Problem	2 days	Mon 1/11/16	Tue 1/12/16	2
4		1.3.Plan the Objectve and Sope	1 day	Tue 1/12/16	Tue 1/12/16	3
5		1.4. Prepare the Project Proposal	4 days	Wed 1/13/16	Sat 1/16/16	4
6		1.5. Submit Project Proposal	1 day	Sun 1/17/16	Sun 1/17/16	5
7		1.6. Get Feedback	1 day	Sun 1/17/16	Sun 1/17/16	6
8		1.7. Make the Changes	5 days	Mon 1/18/16	Fri 1/22/16	7
9		1.8. Get Project Approval	1 day	Sun 1/24/16	Sun 1/24/16	8
10		Project Planning & Approval Complete	0 days	Sun 1/24/16	Sun 1/24/16	



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
10		Project Planning & Approval Complete	0 days	Sun 1/24/16	Sun 1/24/16	
11		**2. Project Development**	**50 days**	**Mon 1/25/16**	**Fri 4/1/16**	**1**
12		**2.1. Start Documentation**	**8 days**	**Mon 1/25/16**	**Wed 2/3/16**	**9**
13		2.1.1. Define the problem statement	3 days	Mon 1/25/16	Wed 1/27/16	10
14		2.1.2. Document Problem Statement	1 day	Thu 1/28/16	Thu 1/28/16	13
15		2.1.3. Conduct Litreture Review	4 days	Fri 1/29/16	Wed 2/3/16	14
16		**2.2. Start Software Development**	**25 days**	**Fri 1/29/16**	**Thu 3/3/16**	**12FS-75%**
17		2.2.1. Gather Development tools	2 days	Fri 1/29/16	Mon 2/1/16	15FS-75%
18		2.2.2. Establish Development Enviroment	1 day	Tue 2/2/16	Tue 2/2/16	17
19		2.2.3. Create UML Diagrams	4 days	Wed 2/3/16	Mon 2/8/16	18
20		2.2.4. Desingn User Interface	3 days	Thu 2/4/16	Mon 2/8/16	19FS-75%
21		2.2.5. Develop system code	20 days	Thu 2/4/16	Thu 3/3/16	20FS-75%
22		2.2.6. Developer Testing	15.25 days	Thu 2/11/16	Thu 3/3/16	21FS-75%
23		Software Development Complete	0 days	Thu 3/3/16	Thu 3/3/16	



	Task Mode	Task Name	Duration	Start	Finish	Predecessors
22		2.2.6. Developer Testing	15.25 days	Thu 2/11/16	Thu 3/3/16	21FS-75%
23		Software Development Complete	0 days	Thu 3/3/16	Thu 3/3/16	
24		**2.3. Conduct System Testing**	**11 days**	**Fri 3/4/16**	**Fri 3/18/16**	**16**
25		2.3.1. Create Test Plan	1 day	Fri 3/4/16	Fri 3/4/16	22
26		2.3.2. Deploy System testing phases	10 days	Mon 3/7/16	Fri 3/18/16	25
27		**2.4. Finalize Project Documentation**	**19 days**	**Tue 3/8/16**	**Fri 4/1/16**	**24FS-75%**
28		2.4.1. Identify and Define Risk of the project	2 days	Tue 3/8/16	Wed 3/9/16	26FS-75%
29		2.4.2. Create User Manual	1 day	Thu 3/10/16	Thu 3/10/16	28
30		2.4.3. Finish Project Tasks	16 days	Fri 3/11/16	Fri 4/1/16	29
31		Project Completed	0 days	Fri 4/1/16	Fri 4/1/16	
32		3. Final Project Submition	1 day	Mon 4/4/16	Mon 4/4/16	27,11,30

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