A Minor Project Report

On

AIRPORT INVENTORY MANAGEMENT SYSTEM

Submitted in partial fulfilment of requirements for the award of the

Degree of

BACHELOR OF ENGINEERING

in

COMPUTER SCIENCE AND ENGINEERING

Under the guidance of

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

M.KUMARASAMY COLLEGE OF ENGINEERING

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KARUR – 639 113

March, 2020

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BONAFIDE CERTIFICATE

Certified that this minor project report "**AIRPORT INVENTORY MANAGEMENT SYSTEM**" is the bonafide work of "**N. HISHORE (18BCS4028), R. DIVIJ (18BCS4018), K. MOHAMMED ISMAIL (18BCS4050), J. RAJARAM (18BCS4077)**" who carried out the project work during the academic year 2019-2020 under my supervision. Certified further, that to the best of my knowledge the work reported here in does not form part of any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

VISION OF THE INSTITUTION

To emerge as a leader among the top institutions in the field of technical education

MISSION OF THE INSTITUTION

- Produce smart technocrats with empirical knowledge who can surmount the global challenges

- Create a diverse, fully-engaged, learner-centric campus environment to provide quality education to the students

- Maintain mutually beneficial partnerships with our alumni, industry, and Professional associations

VISION OF THE DEPARTMENT

To achieve education and research excellence in Computer Science and Engineering

MISSION OF THE DEPARTMENT

- To excel in academic through effective teaching learning techniques

- To promote research in the area of computer science and engineering with the focus on innovation

- To transform students into technically competent professionals with societal and ethical responsibilities

PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

PEO 1: Graduates will have successful career in software industries and R&D divisions through continuous learning.

PEO 2: Graduates will provide effective solutions for real world problems in the key domain of computer science and engineering and engage in lifelong learning.

PEO 3: Graduates will excel in their profession by being ethically and socially responsible.

PROGRAM OUTCOMES (Pos)

Engineering students will be able to:

1. **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication:** Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

12. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAM SPECIFIC OUTCOMES (PSOs)

- **PSO1: Professional Skills:** Ability to apply the knowledge of computing techniques to design and develop computerized solutions for the problems.

- **PSO2: Successful career:** Ability to utilize the computing skills and ethical values in creating a successful career.

ABSTRACT WITH PO AND PSO MAPPING

ABSTRACT	POs MAPPED	PSOs MAPPED
All most every Industry has Inventory Management System for Materials IN & OUT and Tax Invoice. Our system is going to manage the airport organization using QR code. This system can be used to store the details of the equipment in the airport organization, update the inventory based on the service details and inventory report daily or weekly based. Inventory Management System is important to ensure control in organization that handle the service report and the Equipment damage report. A good inventory management system will alert the service management admin when equipment is damaged.	**PO 1(3)** **PO 2(3)** **PO 3(2)** **PO 4(2)** **PO 5(3)** **PO 6(2)** **PO 7(2)** **PO 8(3)** **PO 9(2)** **PO 10(2)** **PO 11(2)** **PO 12(2)**	**PSO 1(3)** **PSO 2(3)**

Note: 1- Low, 2-Medium, 3- High

SUPERVISOR   **HEAD OF THE DEPARTMENT**

ABSTRACT

All most every Industry has Inventory Management System for Materials IN & OUT and Tax Invoice. Our system is going to manage the airport organization using QR code. This system can be used to store the details of the equipment in the airport organization, update the inventory based on the service details and inventory report daily or weekly based. Inventory Management System is important to ensure control in organization that handle the service report and the Equipment damage report. A good inventory management system will alert the service management admin when equipment is damaged.

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LIST OF ACRONYMS/ABBREVIATIONS

AIMS	AIRPORT INVENTORY MANAGEMENT SYSTEM
QR	QUICK RESPONSE
IOT	INTERNET OF THINGS
RFID	RADIO FREQUENCY IDENTIFICATION

CHAPTER 1

INTRODUCTION

1.1 INTRODUCTION OF THE DOMAIN

In fast forward world of technology everyone is running behind time. The main motivation of technology is to produce a time and cost-efficient management. Since mobile phones have become important in our lives. Now the use of mobile phones has been Unlimited. Both consumers and marketer shave craved for an application that allows them to effectively use the phone in their pockets for needs. The airport inventory management system is made for reducing the labour content in airline service for managing the overall inventories. By using mobile phone, it become much easier than human management for that we have built the application to manage the inventory using QR code.

QR-code in the Inventory system contains the details of the inventories. The employee of the airport and admin can scan the QR-code using the QR-scanner in their mobile to manage the inventories. After reading the QR code the checking of particular Inventory is noted in the database. In the proposed system it was easy to check the inventory and maintain the database of the inventories than the existing system.

1.2 OVERVIEW

All most every Industry has Inventory Management System for Materials IN & OUT and Tax Invoice. Our system is going to manage the airport organization using QR code. This system can be used to store the details of the equipment in the airport organization, update the inventory based on the service details and inventory report daily or weekly based. Inventory Management System is important to ensure control in organization that handle the service report and the Equipment damage report. A good inventory management system will alert the service management admin when equipment is damaged.

1.3 QR-CODE

QR Code is a reasonably 2-D zymology developed by Toyota subsidiary Denso Wave in 1994 with the first aim of being a symbol that is easily decoded by scanner instrumentation at high speed with additional knowledge content than conventional barcodes. Conventional Universal Product Code contains decoded data in one direction i.e. vertically into bars and house in between; whereas QR Code contains decoded data in each the directions i.e. vertical and horizontal direction. QR code is capable of holding additional volume of information than barcode, which is even a whole bunch of times as abundant data.

Figure 1.1 QR-CODE

CHAPTER 2

LITERATURE SURVEY

1. In 2010 Yang fan Zhongnan (University of Economics and laws) had found the Development of Inventory management system.

Title: Development of Inventory management system

Methodology: Product management agent, Order agent and Consumer

Concept: Agent technology into domestic storage management system on multi-agent forms network system.

Limitations: co-operation management (Material in and out).

2. In 2011 Zhang Guirong, Mu Yuxin Shandong Jiaotong University Jinan, China had found the Study on Auto enterprise inventory management.

Title: Study on Auto enterprise inventory management

Methodology: The enterprises' internal inventory management problems

Concept: Enhancing enterprise management decision-making ability and reducing enterprise inventory

Limitations: The supply network is not reasonable.

3. In 2016 Lizong Zhang School of Computer Science & Engineering University of Electronic Science had found that An IOT Application for Inventory Management with A Self-Adaptive Decision Model.

Title: An IOT Application for Inventory Management with A Self-Adaptive Decision Model.

Methodology: The proposed model provides a more generic approach for decision support in inventory management. It uses a distributed schema and all decision makings are carried out by the nodes individually to avoid any possible delay caused by network communications.

Concept: The model uses the result of scenario recognition as a benchmark for knowledge selection to create a local knowledge base that used by node individually to carry out the decisions with its own rule-based system

Limitations: They estimated the design could bring 10% work efficiency improvement to their current work procedures.

    4. In 2017 Govind A. Kumbhakarna 1 and R. P. Chaudhari2 Maharashtra, India had found that RFID Based Lab Inventory Management System.

Title: RFID Based Lab Inventory Management System

Methodology: Product management agent, Order agent and Consumer

Concept: Agent technology into domestic lab management system on multi-agent forms network system using RFID based lab inventory management.

Limitations: In the previous design, the smart inventory management system was mainly developed for tracking purpose by using RFID equipment either fixed RFID readers or RFID handheld devices that generated location information of objects.
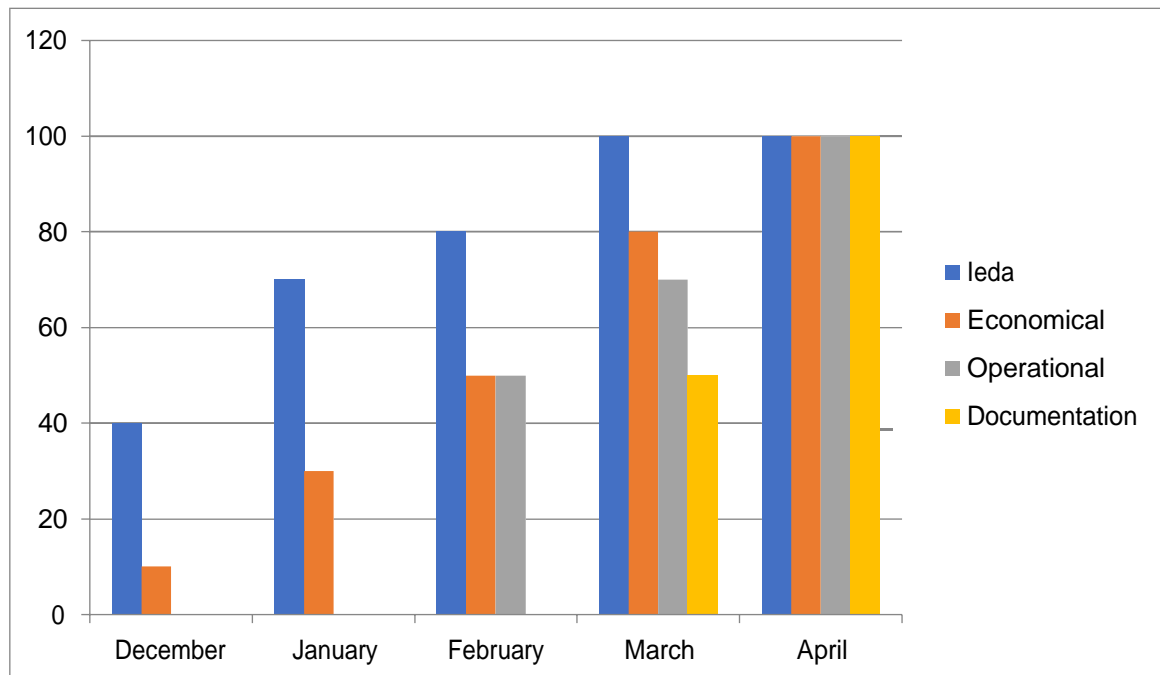
CHAPTER 3

FEASIBILITY STUDY

Figure 3.1(Feasibility Study for AIMS)

1) **Idea**: The firm has to work with ANDROID STUDIO or higher. The computer must be running windows 10 with minimum 4GB RAM. As the software of developing the system is already available, the system is technically feasible. The concern will only be in which system the software is being developed and in which it will be implemented. The project is beneficial only if it can provide a successful and accurate access to the users.

2) **Economic Feasibility**: This is concerned with the cost incurred for development and implementation of the system, the maintenance of the system and the benefits derived from it. The hardware and software required for the system is already available. In this we examine the cost of developing the system with regard to what the organization can afford. The only cost involved is for coding, implementation and connecting the system. Hence the system is economically feasible.

3) **Operational Feasibility**: As per the videos gathered in you-tube and the module description the app has been finished. After finishing this work it ready for testing.

 With better algorithms the software is assured to give better results without compromising in the genre of quality on accessibility

4) **Documentation**: The documentation is completed after getting approval of supervisor.

CHAPTER 4

MODULES DESCRIPTION

4.1 USER INTERFACE MODULE

In this module we deal with login interface and retrieval of data from database in the server. The status attributes check whether inventory is in working condition or not. This system is basically concerned with maintenance of the inventories in airport. The handling of the data and records for such a vast system very complex task if done manually but it can be made much easier if the system is computerized. This system provides an any time anyplace service for the employees.

ADMIN FEATURES:

➢ Admin have their respective user id & password for authenticated login

➢ Admin can scan the QR code of the product if any damages are acquired.

Pre-Condition:

➢ The system displays the menu of available function that's are detailed information, inventories.

➢ This system displays the menu of admin panel.

Post-Condition:

➢ Login is successful.

➢ Whole system makes more flexible for employers to use.

DATAFLOW DIAGRAM:

APPLICATION

EMPLOYEE SIDE

ADMIN SIDE

When new inventory getting inside the airport the details of the inventory can be upload

LOGIN PAGE FOR ADMIN (only the admin employee will interact with service workers).

When Employee scan it the details

RECTIFICATION (notification will be sent) ITEM NO:___ DAMAGES ARE RECTFIED"

The service details will be updated Monthly once and the notification will be sent, if any damages acquired
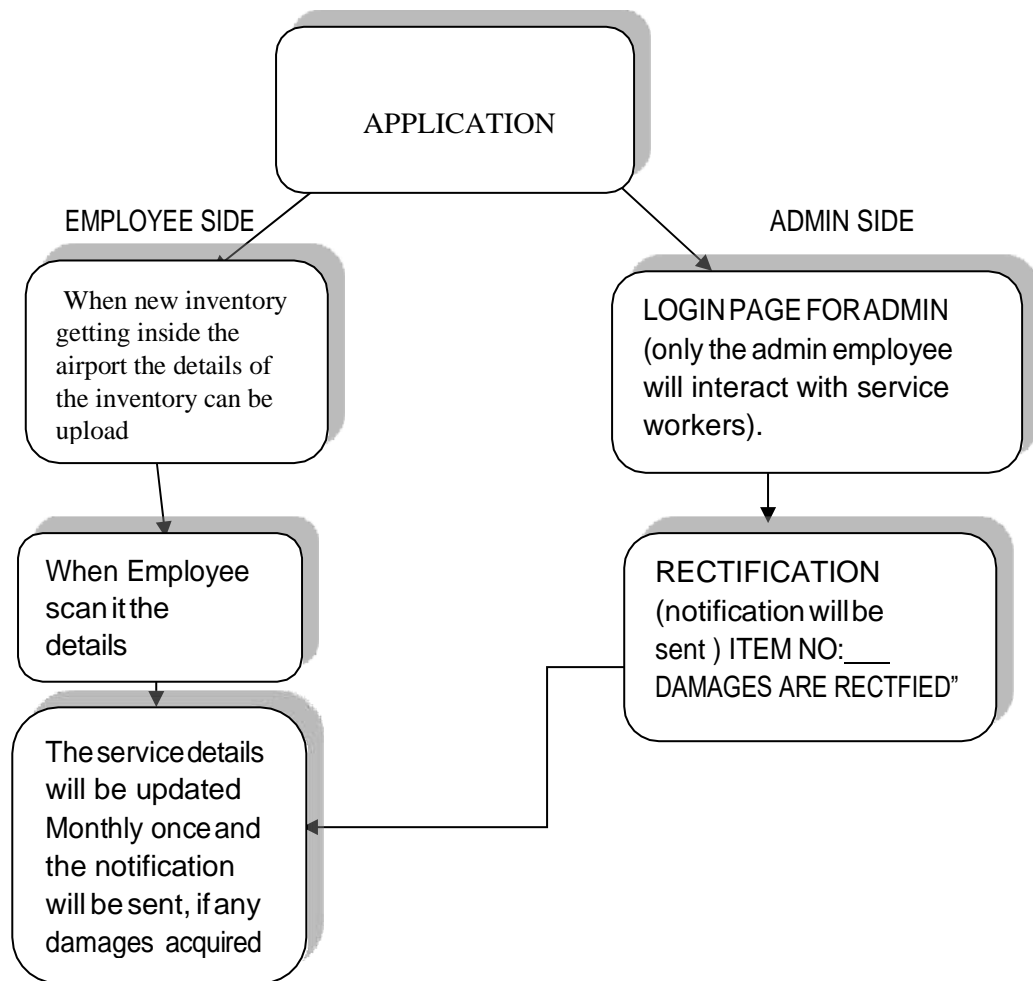
Figure 4.1 (Dataflow Diagram)

CHAPTER 5

TESTING

5.1 INTRODUCTION

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive. A strategy for software testing integrates software test case design methods into a well-planned series of steps that result in the successful construction of software. Testing is the set of activities that can be planned in advance and conducted systematically. The underlying motivation of program testing is to affirm software quality with methods that can economically and effectively apply to both strategic to both large and small-scale systems.

5.2 STRATEGIC APPROACH TO SOFTWARE TESTING

The software engineering process can be viewed as a spiral. Initially system engineering defines the role of software and leads to software requirement analysis where the information domain, functions, behavior, performance, constraints and validation criteria for software are established. Moving inward along the spiral, we come to design and finally to coding. To develop computer software, we spiral in along streamlines that decrease the level of abstraction on each turn.

A strategy for software testing may also be viewed in the context of the spiral. Unit testing begins at the vertex of the spiral and concentrates on each unit of the software as implemented in source code. Testing progress is done by moving outward along the spiral to integration testing, where the focus is on the design and the construction of the software architecture. Talking another turn on outward on the spiral we encounter validation testing where requirements established as part of software requirements analysis are validated against the software that has been constructed. Finally, we arrive at system testing, where the software and other system elements are tested as a whole.

5.3 UNIT TESTING

Unit testing focuses verification effort on the smallest unit of software design, the module. The unit testing, we have is white box oriented and some modules the steps are conducted in parallel.

5.3.1 WHITE BOX TESTING

To follow the concept of white box testing we have tested each form. We have created independently to verify that Data flow is correct and all conditions are exercised to check their validity. All loops are executed on their boundaries.

This type of testing ensures that

➢ All independent paths have been exercised at least once

➢ All logical decisions have been exercised on their true and false sides

➢ All loops are executed at their boundaries and within their operational bounds

➢ All internal data structures have been exercised to assure their validity paths.

5.3.2 CONDITIONAL TESTING

In this part of the testing each of the conditions were tested to both true and false aspects. And all the resulting paths were tested so that each path that may generate on a particular condition is traced to uncover any possible errors.

5.3.3 DATA FLOW TESTING

This type of testing selects the path of the program according to the location of definition and use of variables. This kind of testing was used only when some local variable was declared. The definition-use chain method was used in this type of testing. These were particularly useful in nested statements.

5.3.4 LOOP TESTING

In this type of testing all the loops are tested to all the limits possible. The following exercise was adopted for all loops:

➢ All the loops were tested at their limits, just above them and just below them. All the loops were skipped at least once.

➢ For nested loops test the inner most loop first and then work outwards. For concatenated loops the values of dependent loops were set with the help of connected loop.

➢ Unstructured loops were resolved into nested loops.

5.4 TEST CASE:

A test case, in software engineering, is a set of conditions or variables under, which a tester will determine whether an application, software system or one of its features is working as it was originally established for it to do. The mechanism for determining whether a software program or system has passed or failed such a test is known as a *test oracle*. In some settings, an oracle could be a requirement or use case, while in others it could be a heuristic. It may take many test cases to determine that a software program or system is considered sufficiently scrutinized to be released. Test cases are often referred to as test scripts, particularly when written they are usually collected into test suites.

Table 5.1 Brief Test Case Description

TEST	TEST DESCRIPTION	INPUT	EXPECTED RESULT	TEST RESULT
1	Test the application when login page is opened.		System should display login screen with fields Username and Password with Login button.	**Pass**
2	Test the application when the user clicks the login button after entering the correct details.	Service admin ID: admin Password : admin	The system should navigate to specification page.	**Pass**
3	Test the System when the user clicks the login button without entering the correct details.		The System should show error indicating wrong username and password.	**Pass**
4	Test the functionality of 'service admin' field	Admin	The system should accept the input and should not throw any errors.	**Pass**
5	Test the functionality of 'Password' field	Admin	The system should accept the input and should not throw any errors.	**Pass**

6	Test the system when the user enters correct specifications in the Specifications field.		The system should generate the correct result.	**Pass**
7	Test the System when the user does not select the 'Item Name'.		The system must throw an error	**Pass**
8	Test the System when the user does not select the students for which the exam is conducted.		The system must throw an error	**Pass**
9	Test the System when the user does not select the enough classrooms to accommodate the students.		The system must throw an error	**Pass**

Table 5.2 Test Case Results

S NO.	TEST SCENARIO	EXPECTED RESULT	TEST RESULT
1	Employee is incorrect Password is correct	Employee and Password Invalid	Employee and Password Invalid
2	Employee is correct Password is incorrect	Employee and Password Invalid	Employee and Password Invalid
3	Both employee and password incorrect	Employee and Password Invalid	Employee and Password Invalid
4	Both employee and password correct	Redirect to next page	Redirect to next page
5	Retrieve Data (if any problem)	Fetch Data	Couldn't get data

CHAPTER 6

RESULT & SCREENSHOTS

6.1 FRONT PAGE:

Figure 6.1

6.2 DISPLAY PAGE OF USER LOGIN:

Figure 6.2

6.3 PRODUCT & SERVICE DETAILS:

Figure 6.3

6.4 SCANNER:

Figure 6.4

6.5 VERIFICATION:

Figure 6.5

6.6 NOTIFY:

Figure 6.6

CHAPTER 7

REFERANCE

WEBSITES:

1. http://www.w3schools.com/php/

2. http://www.w3schools.com/js/

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