

A Project Based Report
on
”WIRELESS COUNTERS SYSTEM FOR CROWD CONTROL IN PUBLIC PLACES”

Submitted to the
Savitribai Phule Pune University
In partial fulfillment for the award of the Degree of
Bachelor of Engineering
in
Information Technology
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2020-2021



CERTIFICATE

This is to certify that the project stage 1 report entitled “WIRELESS COUNTERS SYSTEM FOR CROWD CONTROL IN PUBLIC PLACES” being submitted by group : B is a record of bonafide work carried out by him/her under the supervision and guidance of Prof. R. M. Kaule in partial fulfillment of the requirement for BE (Information Technology)-2015 Course of Savitribai Phule Pune University, Pune in the academic year 2020-2021.

date:

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ACKNOWLEDGEMENT

In our endeavour to achieve success in completing project report on an WIRELESS COUNTERS SYSTEM FOR CROWD CONTROL IN PUBLIC PLACES, we take this opportunity to express our deepest sense of gratitude to our guide respected Prof. R. M. Kaule for his guidance and kind co-operation throughout the period of work. We would especially like to thank our other staff members for being patient and always supporting in the best way possible.

We are also very thankful to our respected H.O.D. Prof.N.R.Jain, for providing us with adequate facilities, ways and means by which I was able to complete this project report. We would like to thank our respected Principal Dr.R.V.Patil who creates a healthy environment for all of us to learn in best possible way. We express our thankfulness to all teachers and staff of IT department for timely help in course of project report. Finally, special thanks to my friends, family members and all others those unseen people across the internet for maintaining source on the internet that helped us in the successful completion of this work.

Abstract

Our abstract

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1 INTRODUCTION TO PROJECT TOPIC

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1.1 Background

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1.2 Problem Definition

To maintain social distance solving queries as fast as possible and letting people free as soon as possible. requirements: a powerful server machine a wireless plus wired network.

1.3 Goals and Objectives

- 1.To develop a system with possible high accuracy and that will try to give best response to an every person.
- 2.To develop best corpus i.e. data set and to develop model with architecture in terms of best accuracy with probably best algorithm.
- 3.To use all possible computer science knowledge and use software development life cycle to create and deploy project in professional manner.

1.4 Relevance

The relevance of a project describes how efficient the outcome of the project is expected to be with respect to a given goal, to be specified by the evaluation or by the project being submitted. This means that the relevance of a project has always to be related to some goal and, for general research projects, that goal is most often the increase of our scientific knowledge, although it is sometimes also related to more direct social or environmental benefits for our society.

1.4.1 Project Relevance and Objectives

This Software is developed to be a complete solution for saving time. It provides a simple yet effective solution to create a peaceful environment. The main cause of relevance is day to day use for social distancing and for time saving. It would be a real time software where the application is vast.

1.5 Project Undertaken

the project extends with an increase in domains for every domain application increases and for every domain local services have to be designed.

In places where local services are not applicable, there may be a sensor system that would feed the global server with the required information which data would be analysed and made useful for a user to decide for planning visits to such places.

Global Apps brings data to users in a usable manner provides statistics upon the crowd. It's like people thinking twice before visiting a crowded place but if they have the chance to visit that place then they won't miss it.

Global Apps Features:-

1. Including above it would show crowded places near the user.
2. It would alert the user if he/she is close to a crowded area or proceeding into one.
3. Global App would like to rate a place by its hygiene also and would mine data for it.
4. The local system will gather data and send it to the Global server with the use of API.
5. Local systems are or should be full-featured systems helping in sharing the time of people using them.

Sensors System:- Sensors systems would be helpful where the counter system is not applicable like wedding halls, malls, bus stops, etc. Sensor systems would consist of cameras entrance sensors like weight sensors and motion sensors would send data to the Global server.

Combinational System:- Most of the counters have cameras, a computer system for billing. We have to just do some upgrades combine cameras and make the computer system wireless give it a communication interface use camera for the count. To connect to the local system there may be many ways like QR code or through global system guide or notification system of routers which is used for login for use of data in public places like railway stations, malls, bus stops, banks, etc. **Global System Components:-** The global system would comprise Web App Server + Data Processing Unit + Database for Processed Data. Global App may let guest user allow to use the system so to protect their identity. And let them change their id anytime. The app would give statics of the favourite places of the users would also use government API to keep a note of quarantine zones. GPS would be needed for tracking and discovering local systems around a user. Such a project may contribute to an increase in the sale because it may be to balance the crowd throughout the day.

1.6 Project Plan

Project Estimate

We are using Iterative and Incremental model for our project estimation.

Incremental Model:

Incremental Model is a process of software development where requirements divided into multiple standalone modules of the software development cycle.

Incremental Model DIAGRAM

1. Requirement analysis: The product analysis expertise identifies the requirements. And the system functional requirements are understood by the requirement analysis team. To develop the software under the incremental model, this phase performs a crucial role.

2. Design and Development: The design of the system functionality and the development method are finished with success. When software develops new practicality, the incremental model uses style and development phase.

3. Testing: Testing phase checks the performance of each existing function as well as additional functionality. In the testing phase, the various methods are used to test the behavior of each task.

4. Implementation: Implementation phase enables the coding phase of the development system. It involves the final coding that design in the designing and development phase and tests the functionality in the testing phase. After completion of this phase, the number of the product working is enhanced and upgraded up to the final system product.

Iterative Model:

In this Model, you can start with some of the software specifications and develop the first version of the software. After the first version if there is a need to change the software, then a new version of the software is created with a new iteration. Every release of the Iterative Model finishes in an exact and fixed period that is called iteration.

Iterative model DIAGRAM

1. Requirement gathering and analysis: In this phase, requirements are gathered from customers and check by an analyst whether requirements will fulfil or not. Analyst checks that need will achieve within budget or not. After all of this, the software team skips to the next phase.

2. Design: Team design the software by the different diagrams like Data Flow diagram, activity diagram, class diagram, state transition diagram, etc.
3. Implementation: The requirements are written in the coding language and transformed into computer programmes which are called Software.
4. Testing: Software testing starts using different test methods. There are many test methods, but the most common are white box, black box, and grey box test methods.
5. Deployment: After completing all the phases, software is deployed to its work environment.
6. Review: After the product deployment, review phase is performed to check the behaviour and validity of the developed product. And if there are any error found then the process starts again from the requirement gathering.
7. Maintenance: In this after deployment of the software in the working environment there may be some bugs, some errors or new updates are required. Maintenance involves debugging and new addition options.

1.6.1 Organization of report

The organization of these report is as follows:

- Chapter 1 Introduction of the purposed system.
- Chapter 2 The background of the project and literature review of the project.
- Chapter 3 Idea about the requirement and the specifications of system.
- Chapter 4 Software design life cycle and the various UML Diagrams.
- Chapter 5 System architecture and the implementation of system.
- Chapter 6 The expected results and risks of the system.
- Chapter 7 The conclusion from the project.

BACKGROUND

2.1 Survey on Background and Motivation

A person is happy till his work finished in the time needed or expected. A person gets frustrated when he or she spends more time on counters most of the time like banks, colleges, government service centres, private company counters etcetera.

Due to crowd people suffocate and their mood also gets down now in such situation like Covid 19 it's hard to maintain such crowd we can't force people to follow rules when their queries are solved from counter very early they have a no reason to be in the queue, so no reason.

At some point of time, people start disrespecting the rules and they start breaking the rules of the social distancing as time will pass it will be hard to continue lockdown to make economy not to be crashed at a certain period solution on such problem this is just a solution but a precautional solution if counters work traditionally then it would be hard to control the crowd.

The main objective is that wireless network allows us to connect to the world it can be used for raising a local server under a router while server counter provides an interface to communicate to outside people wirelessly where people would approach counter through mobile view, mobile app or browser.

2.2 Literature Review

1. Title: Managing Crowds with Wireless and Mobile Technologies 2018.

Author: Mohammad Yamin , Abdullah M. Basahel, and Adnan A. Abi Sen.

Description: In this paper, we explore

2. Title: Wi-Fi Based Notification System 2014.

Author: Prof. V.P.Patil, Onkar Hajare, Shekhar Palkhe, Burhanuddin Rangwala

Description: This paper proposes a method to generate wifi based notification system.

We studied method for develop a wireless notice board that displays messages sent from the user.

SPECIFICATION

3.1 Functional Requirements

3.1.1 Functional Specification

1. The application is user friendly.
2. It provides an easy interface to user.
3. The accessibility or response time of the application should be fast.
4. Mainly making crowd control easy.

3.1.2 Dependency and constraints

1. End User application will be developed in Windows OS.
2. All scripts shall be written in Python, html.

3.2 Non Functional Requirements

3.2.1 Performance Requirement

1. System can produce results faster on 8GB of RAM.
2. It may take more time for peak loads at main node.
3. The system will be available 100

3.2.2 Safety Requirement

1. Only administrators have access to the database of each individual user.
2. All data will be backed-up every day automatically and also the system administrator can back-up the data as a function for him.
3. This makes it easier to install and updates new functionality if required.

3.2.3 Security Requirements

3.2.4 Software Quality Attributes

The system considers following non-functional requirements to provide better functionalities and usage of system.

Availability: The system shall be available during 24 hours of a day.

Usability: The system is designed keeping in mind the usability issues considering the end-users who are developers/programmers. It provides detailed help which would lead to better and faster learning. Navigation of system is easy.

Consistency: Uniformity in layout, screens, Menus, colors scheme, format.

Performance: The performance of the system should be fast and as per user requirement.

Extendibility: Prevention in the system should be done in the system by which we make changes in the system later on.

Reusability: Files of any type can be used by the system for any number of times during transformation.

Reliability: Protection of data from malicious attack or unauthorized access.

3.3 Software Requirements

RAM : 8 GB

Hard Disk : 40 GB

Processor : Intel i5 Processor

IDE :Pycharm

Coding Language : Python Version 3, HTML5, CSS,J query, Bootstrap

Operating System : Windows 10

Wireless Routers having vast range more than 200 m radius.

Design and Architecture

4.1 Design

4.2 Architecture

4.3 Mathematical Model

4.3.1 Data Description

Describing and documenting data is essential in ensuring that the researcher, and others who may need to use the data, can make sense of the data and understand the processes that have been followed in the collection, processing, and analysis of the data. Research data are any physical and/or digital materials that are collected, observed, or created in research activity for purposes of analysis to produce original research results or creative works.

4.3.2 Data objects and Relationships

A data object is a part of the repository whose content can be addressed and interpreted by the program. All data objects must be declared in the ABAP program and are not persistent, meaning that they only exist while the program is being executed. Before you can process persistent data (such as data from a database table or from a sequential file), you must read it into data objects first. Conversely, if you want to retain the contents of a data object beyond the end of the program, you must save it in a persistent form.

4.3.3 Divide-and-conquer

The divide-and-conquer strategy solves a problem by:

1. Breaking it into sub problems that are themselves smaller instances of the same type of problem.

2. Recursively solving these sub problems.

3. Appropriately combining the answers The real work is done piecemeal, in three different places: in the partitioning of problems into sub problems ;at the very tail end of the recursion, when the sub problems are so small that They are solved out right ;and in the glue ingoted the roof partial answers. The sear held together and coordinated by the algorithm' score recursive structure.

We divide our projects in small modules. All these modules are combining together to form our system

RESULT AND EVALUATION

5.1 Risk Management w.r.t. NP Hard analysis:

1. Inappropriate dataset-To overcome this risk we are trying to use well organized and complete dataset.
2. Security- To overcome and improving security we use multilevel security like access permissions of user.

5.2 Risk Identification:

1. Have top software and customer managers formally committed to support the project?
Ans - Not applicable.
2. Are end-users enthusiastically committed to the project and the system/product to be built?
Ans-Not known at this time.
3. Are requirements fully understood by the software engineering team and its customers?
Ans-Yes
4. Have customers been involved fully in the definition of requirements?
Ans-Not applicable
5. Do end-users have realistic expectations?
Ans-Not applicable
6. Does the software engineering team have the right mix of skills?
Ans-yes
7. Are project requirements stable?
Ans-Not applicable
8. Is the number of people on the project team adequate to do the job?
Ans-Not applicable
9. Do all customer/user constituencies agree on the importance of the project and on the requirements for the system/product to be built?
Ans-Not applicable

5.3 Risk Mitigation Risk Monitoring and Risk Management

5.3.1 Risk Mitigation:

If a software team adopts a proactive approach to risk, avoidance is always the best strategy. This is achieved by developing a plan for risk mitigation. To mitigate this risk, you would develop a strategy for reducing turnover. Among the possible steps to be taken are:

1. Meet with current staff to determine causes for turnover (e.g., poor working conditions, low pay, competitive job market).

2. Mitigate those causes that are under your control before the project starts.
3. Once the project commences, assume turnover will occur and develop techniques to ensure continuity when people leave.
4. Organize project teams so that information about each development activity is widely dispersed.
5. Define work product standards and establish mechanisms to be sure that all models and documents are developed in a timely manner.
6. Conduct peer reviews of all work (so that more than one person is up to speed).
7. Assign a backup staff member for every critical technologist.

5.3.2 Risk Monitoring

As the project proceeds, risk-monitoring activities commence. The project manager monitors factors that may provide an indication of whether the risk is becoming more or less likely. In the case of high staff turnover, the general attitude of team members based on project pressures, the degree to which the team has jelled, interpersonal relationships among team members, potential problems with compensation and benefits, and the availability of jobs within the company and outside it are all monitored.

5.3.3 Risk Management

Risk management and contingency planning assumes that mitigation efforts have failed and that the risk has become a reality. Continuing the example, the project is well under way and a number of people announce that they will be leaving. If the mitigation strategy has been followed, backup is available, information is documented, and knowledge has been dispersed across the team. In addition, you can temporarily refocus resources (and readjust the project schedule) to those functions that are fully staffed, enabling newcomers who must be added to the team to get up to speed. Those individuals who are leaving are asked to stop all work and spend their last weeks in knowledge transfer mode. This might include video-based knowledge capture, the development of commentary documents or Wikis and Formeeting with other team members who will remain on the project.

CONCLUSION AND FUTURE WORK

REFERENCES