VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELAGAVI – 590018

A Project Phase – I

Report On

"SMART SHOPPING COMPLEX"

Submitted in partial fulfilment for the award of the degree in

BACHELOR OF ENGINEERING IN COMPUTER SCIENCE & ENGINEERING

Submitted by

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Under the guidance of

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	BANGALORE TECHNOLOGICAL INSTITUTE **(An ISO 9001:2015 Certified Institute)** (Affiliated to Visvesvaraya Technological University, Belagavi) **Department of Computer Science & Engineering**	

CERTIFICATE

It is certified that the project work entitled **"SMART SHOPPING COMPLEX"** carried out by **MICHAEL THAPA(1BH18CS055), PRABIN UPADHAYAYA(1BH18CS070), DAN BAHADUR SHAHI(1BH18CS108), ANISH THAPA(1BH18CS112),** are bonafide students of **Bangalore Technological Institute, Bangalore** in partial fulfillment for the award of **Bachelor of Engineering in Computer Science Engineering** of the **Visvesvaraya Technological University**, **Belagavi** during the year **2021-2022**. Thus, it is certified that all corrections/suggestions indicated for Internal Assessment have been incorporated in the report submitted to the Department of Computer Science and Engineering. The "Smart-Shopping Complex" project report has been approved as it satisfies the academic requirements in respect of project work prescribed for the said degree.

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Dr. Sohan Kumar Gupta	Mrs. Bhavya R
H.O.D,	Guide,
Department of CSE.	Department of CSE.

External Viva

Name of the Examiners	Signature with date
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2. _____	_____

BANGALORE TECHNOLOGICAL INSTITUTE

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Department of Computer Science & Engineering

DECLARATION

We the students of seventh semester **B.E. COMPUTER SCIENCE AND ENGINEERING ,BANGALORE TECHNOLOGICAL INSTITUTE, BENGALURU**, hereby declare that the project work entitled **"SMART-SHOPPING COMPLEX"** has been independently carried out by us at Bangalore Technological Institute, Bengaluru and submitted in partial fulfilment of the requirements for the award of the degree in **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum during the academic year 2021-22.

We also declare that, to the best of our knowledge and believe the work reported here does not form or part of any other dissertation on the basis of which a degree or award was conferred on an early occasion of this by any other student.

PLACE: BENGALURU

DATE:

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Abstract

In today's life, going to supermarkets for shopping is increasing rapidly. During this pandemic not all the people are aware and follow the safety measures, thus maintain all these are most important for the safety of the customers. Time is taken in billing counter and had to be in queue until the turn comes. Needed to get rid of it, our project assures it based on proposed a system based on RFID technology. The system contains the items attached with RFID tag, RFID reader which reads the tag information when put into the trolley. Then this information is sent to main billing server which calculates the total amount of purchased items and sends the calculated bill to the device attached to trolley for displaying it on LCD. Along with this, we have proposed a vehicle parking system as well. Here, is there space for parking a vehicle or not will be displayed on LCD at the entrance gate of parking lot. So, it will be easy for customers to park. And also looking the current situation we have planned for mask detecting sensor and automatic sanitizing sensor at the entrance of complex before entering. And also, after entering inside complex we can get a map of that particular complex to see stuffs in which stalls we can find. It will make people easy to find out the things and also save time for them. As well LCD will also display the map of whole complex inside it.

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CHAPTER 1

INTRODUCTION

Internet of Things (IOT) is the network of physical objects embedded with Radio Frequency Identification (RFID), embedded systems, sensors, network, and software that enable physical objects to collect and exchange data for a common goal. Everyday objects can now be equipped with computing power and communication functionalities, allowing objects everywhere to be connected.

This has brought a new revolution in industrial, financial, and environmental systems, and triggered great challenges in data management, wireless communications, and real-time decision making. Additionally, many security and privacy issues have emerged and lightweight cryptographic methods are in high demand to fit in with IOT applications. There has been a great deal of IOT research on different applications, such as smart homes, e-health systems, wearable devices. In this paper we focus fully in shopping complex for the safety and saving time of people. Here mask detecting sensor, temperature measuring and automatic sanitizing will be provided at the entrance of mall.

After that when we enter inside mall each person can get the map of the mall where locations of different stuffs will be provided as well as anyone can see map of mall in LCD will be displayed in centre of mall. Smart shopping system based on Radio Frequency Identification (RFID) technology, which has not been well-studied in the past. In such a system all items for sale are attached with an RFID tag, so that they can be tracked by any device equipped with an RFID reader in the store –for example, a smart shelf. It becomes easy for the store to do inventory management as all items can be automatically read and easily logged.

1.1 Objectives

- Assure the health of the customers with proper protocols during pandemics like COVID-19,
- Minimize time complexity for billing with smart trolly,
- Guiding customers to their particular area of interest (i.e., stalls) through map/display,
- QR code for secure transactions,
- QR pass to exit door for security purpose,
- Minimize human manpower.

CHAPTER 2

LITERATURE SURVEY

2.1. Related Work:

The main idea is to save customers time by providing digital billing system. A compartment of all the products will be attached with RFID tags/cards, and the purchasing product information will get stored in the database. The billing will then get generated in the LCD as well as the Server. This research work utilizes RFID reader, LCD and Wi-Fi transmitter in the advanced mobile trolley. It has three modes of Control LEDs in the system, White LED is used for the user to understand that the setup is in working mode and battery is in use. Red LED is used for the user to understand that Battery is in charging mode. Green LED is used for the user to understand that battery is in full charged mode. To prevent the spread of the covid-19 by monitoring in real time if person is wearing face masks in public places.

S. No	Paper Title and Year	Name of the Author's	Discussed	Remarks
1	Smart Cart Shopping System with an RFID Interface for Human Assistance, 2020	S. Lakshmanachari, G. Avanthi, Vallabhuni Vijay	The main idea is to save customers time by providing digital billing system. A compartment of all the products will be attached with RFID tags/cards, and the purchasing product information will get stored in the database. The billing will then get generated in the LCD as well as the Server. This research work utilizes RFID reader, LCD and Wi-Fi transmitter in the advanced mobile trolley	To decrease the time at billing, RFID arrangement has been proposed. Each advanced mobile truck will be provided with an RFID reader, Raspberry pi 3, Arduino, and LCD. The framework holds the things joined for RFID tag. RFID reader proceeds with the tag data when it is required to add or remove items from the trolley.
2	Self-Activating Sanitizer with battery-imposed system for Cleansing Hands, 2020	Mr. M. M. Srihari	It has three modes of Control LEDs in the system, White LED is used for the user to understand that the setup is in working mode and battery is in use. Red LED is used for the user to understand that Battery is in charging mode. Green LED is used for the user to understand that battery is in full charged mode.	Provide continuous power supply instead of using battery minimizing the cost as LEDs are not needed for displaying the battery status.
3	Smart Door / COVID-19 Face Mask Detection, 9 July 2021	Pavan Narayana A, Janardhan Guptha S, Deepak S, Pujith Sai P	To prevent the spread of the covid-19 by monitoring in real time if person is wearing face masks in public places.	We can get the details of the people who are not wearing masks and when it comes to school or working office premises, we this will be very useful

CHAPTER 3

PROBLEM STATEMENT

3.1 Existing System

- A smart trolley for human assistance was proposed, a customer had to press add/subtract button for the addition/subtraction of the items. The items information had to be sent to the central billing server, calculate the total amount of purchased items and it would be displayed on the webpage then pay but didn't mention how the information would be sent and no receipt was provided,
- A hand sanitizer was proposed in which batteries were used as the source of power which would not last for long and had to charge time and again,
- A face mask detection and temperature measurement was proposed but had not mentioned the gate pass to the mall,
- During such a pandemic of COVID, volunteers were needed to maintain a queue and other crowdy activities,
- Customers used to get dull as they were new to the mall and didn't know where to find their respective choices like clothing section, the sports section and so on,
- Didn't know about the parking status.

3.2 Proposed System

- At the entry gate, customers will be guided to parking zones,
- Customers will be provided some protocols for their safety,
- Hand sanitizer with continued power supply via switchboard,
- Allow the pass if and only if the customer is wearing mask and has a mask,
- Customers are guided through indoor maps/displays to their respective stores like sport, restaurants, clothing stores and so on,
- QR code for easy and reliable payment to overcome the payment process,
- Barcode generation for the exit for security purposes i.e., QR code
- For those customers who even don't buy get secondary QR code for the exit pass.

CHAPTER 4
REQUIREMENT SPECIFICATION

4.1 Hardware Requirements

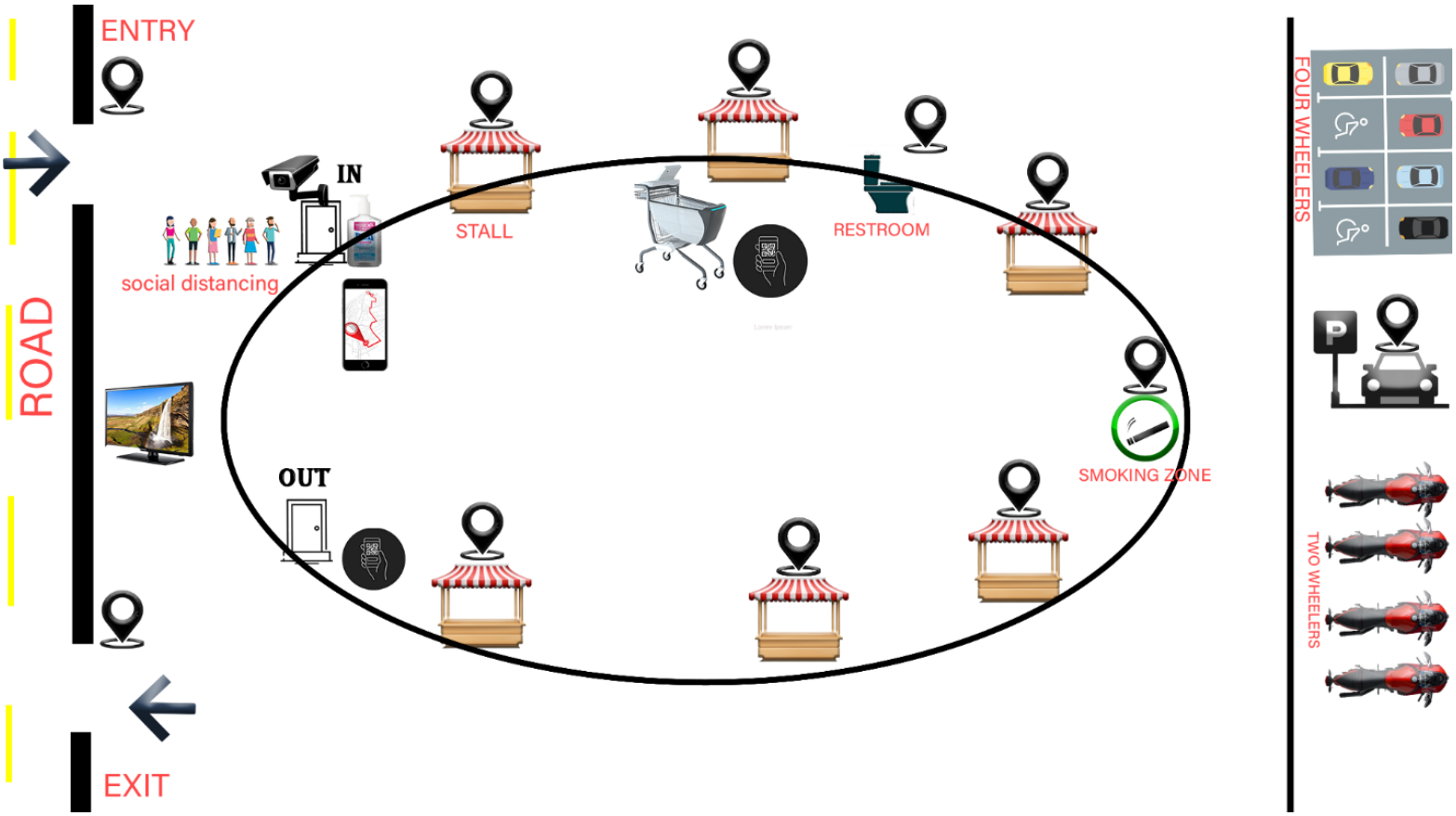
- Ultrasonic Sensor
- 16:2 LCD Display
- Camera
- Arduino
- TMP36(temperature sensor)
- RFID reader, RFID tag
- Buzzer

4.2 Software Requirements

- Python
- Arduino Sketch_dec
- IDE- VS code

CHAPTER 5

SYSTEM DESIGN



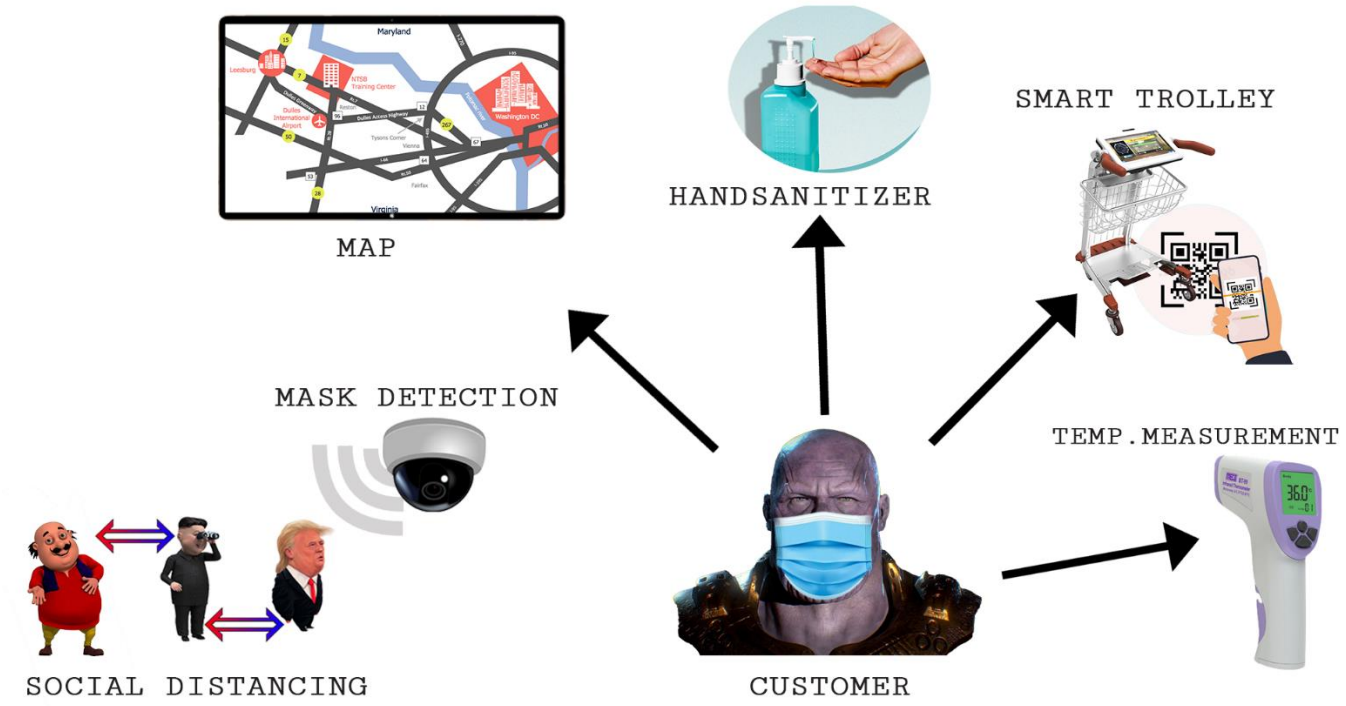


Fig: Customer Interaction

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