

PROJECT REPORT

On

SMART PARKING SYSTEM

Submitted to Rajasthan Technical University
in partial fulfillment of the requirement for the award of the degree of

B.TECH.

in

COMPUTER ENGINEERING

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at



**POORNIMA INSTITUTE OF ENGINEERING & TECHNOLOGY,
JAIPUR**

**RAJASTHAN TECHNICAL UNIVERSITY, KOTA
APRIL, 2019**

CERTIFICATE

This is to be certified that the project entitled “Smart Parking System” has been submitted for the Bachelor of Computer Science and Engineering, Poornima Institute Of Engineering & Technology, Jaipur during the academic year 2018-2019 is a bonafide piece of project work carried out by “**Aniket Mathur, Kartik Tiwari & Mahesh Meena**” towards the partial fulfillment for the award of the Degree (B.Tech.) under the guidance of “**Dr. Ajay Maurya**” and supervision and no part of thereof has been submitted by them for any degree or diploma.

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CANDIDATE’S DECLARATION

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ACKNOWLEDGEMENT

It is our pleasure to be indebted to various people, who directly or indirectly contributed in the development of this work and who influenced our thinking, behavior and acts during the course of study.

We express our sincere gratitude to **Dr. Dinesh Goyal** ,Director, PIET for providing us an opportunity to undergo this Major Project as the part of the curriculum.

We are thankful to **Mr. Deepak Moud, HOD, CS** for his support, cooperation, and motivation provided to us during the training for constant inspiration, presence and blessings.

We are thankful to **Prof.(Dr.)Ajay Maurya** for her support, cooperation, and motivation provided to us during the training for constant inspiration, presence and blessings.

We also extend our sincere appreciation to **Prof. (Dr.) Praveen Gupta** who provided his valuable suggestions and precious time in accomplishing our Project report.

Lastly, we would like to thank the almighty and our parents for their moral support and friends with whom we shared our day-to-day experience and received lots of suggestions that improved our quality of work.

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ABSTRACT

Smart Parking System is basically a Web Portal to get information about all Paid Parking Lots available in the City or in the particular area. This will help the local people to easily get the Information about whether the parking is available or not. Web Portal will tell that whether the Parking is available on a particular time or not. The Portal will also keep a check on how many vehicles have entered the parking and how many vehicles have exited the parking. The Portal will not keep a check on Free Parking Lots as the system of parking in Free Parking Lots is not well organized. The user will enter a particular area, all the parking lots available in that area will be displayed and the user will select a particular parking lot to know whether the Spaces are available or not. If spaces will not be available then Portal will show that in how much estimated time the space will get available. And, If space is available then it will show Number of Spaces available for different vehicles like Two Wheelers, Three Wheelers, etc. The Web Portal will be freely available as everyone can use it anytime from anywhere. Stable Internet Connection will be needed. The Web Portal will get linked with the Server of particular Parking Lot.

KEYWORDS: Parking Lot, Web Portal, Internet Connection, Vehicles.

CHAPTER 1

INTRODUCTION TO PROJECT

Project Aim and Objective:

- The aim of the project is to develop an online website with the help of which a user can see availability of parking.
- Smart Parking System is basically a Web Portal to get information about all Paid Parking Lots available in the City.
- Parking is now a days becoming main problem of the Metro Cities.
- Web Portal will be basically for all Paid Parking's only.
- Web Portal will be a freely service available for all the users as users will have not to login and can see parking availability at anytime from anywhere.
- This portal is basically for paid parking and not for free parking.
- Web Portal is first step towards innovation and an App will make it easier for users to access the parking lot.

Problem Statement:

Now days in metro cities number of vehicles are increasing day by day. That is why the problem of parking is increasing. People don't know where to park their vehicle in order to keep their vehicle safe. Free parking lot is not the right place to keep your vehicle and free parking lot is not the parking lot where vehicle is kept safe. Free parking lots contain lots of vehicles and there is not any organized way of keeping the vehicle in the free parking lot. Paid Parking is the best way of keeping the Vehicle safe and secure.

Background of the Project (Literature Survey):

It has been seen that many of the parking spaces in the city is overcrowded and people don't park their vehicles safe and they park it on the road which creates congestion on the road and it leads to Traffic Jam. If proper parking space will be available then there will be no problem in keeping the vehicle safe. Safety is our first priority and people should follow it.

Software Requirements:

- Web Portal.
- Database of Parking Lots

Hardware Requirements:

- A Computer network.
- An active Internet Connection.
- IOT Sensor Device

CHAPTER 2

PRODUCT BACKLOG

1. Product Backlog:

The Web Portal will include Registration of Admin to include a Parking Area. All the details of incoming and outgoing vehicles will be maintained and accordingly number of Spaces will get changed. The users are free to view the Number of Spaces Available and Prediction will be there in order to see that till what time the Parking is available or till what time the Parking will get full. The users can give Suggestions about the Parking Lot. The User will enter the area and all the parking lots available in that area will be displayed. If that area is not having any parking lot then it will display a message that Parking Lot Not Available.

PRODUCT BACKLOG								
Batch 2018_2019								
SPRINT BACKLOG	US ID	BACKLOG ITEM			PRIORITY	RESPONSIBLE	ESTIMATE DATE	REMARKS
		AS A/AN	I WANT TO	SO THAT				
1	SB1/US1	Admin	open web portal	admin can register free parking lots.	1	Kartik Tiwari	22-09-2018	
1	SB1/US2	Admin	Registers Himself/Herself	parking lot can be verified	2	Kartik Tiwari	22-09-2018	
1	SB1/US3	Admin	sign's in	admin puts his/her parking lot	3	Kartik Tiwari	22-09-2018	
1	SB1/US4	Admin	will register only single parking lot	each admin is associated with one parking lot	1	Kartik Tiwari	22-09-2018	
1	SB1/US5	Admin	will keep record of vehicles	no vehicle is stolen	2	Kartik Tiwari	22-09-2018	
1	SB1/US6	Admin	mention the number of spaces available	user can park vehicles.	2	Kartik Tiwari	22-09-2018	

		n						
1	SB1/ US7	Ad mi n	mention the time period of availability of spaces	parking problems will be reduced.	1	Kartik Tiware	29- 09- 2018	
1	SB1/ US8	Ad mi n	control incoming vehicles	number of spaces will decrease.	2	Kartik Tiware	29- 09- 2018	
1	SB1/ US9	Ad mi n	control outgoing vehicles	number of spaces will increase	2	Kartik Tiware	29- 09- 2018	
1	SB1/ US1 0	Ad mi n	register only free parking lots	user can park their vehicles.	1	Kartik Tiware	29- 09- 2018	
1	SB1/ US1 1	Ad mi n	cover all the parking lots	parking problems will reduce in that area.	1	Kartik Tiware	02- 10- 2018	
1	SB1/ US1 2	Ad mi n	predict the available parkings	I can interact with the tools of application.	1	Kartik Tiware	02- 10- 2018	
1	SB1/ US1 3	Ad mi n	change the number of spaces automatically	user can see available spaces.	1	Kartik Tiware	02- 10- 2018	
2	SB2/ US1	Ad mi n	display message if the parking is available	user can look for another parking.	4	Kartik Tiware	02- 10- 2018	
2	SB2/ US2	Ad mi n	display all the nearby parking lots	user can choose his/her suitable parking.	4	Kartik Tiware	02- 10- 2018	
2	SB2/ US3	Ad mi n	paid parking has different criteria	admin will not include paid parking.	5	Kartik Tiware	09- 10- 2018	
2	SB2/ US4	Us er	open web portal	enter particular area	1	Kartik Tiware	09- 10- 2018	
2	SB2/ US5	Us er	display the parking lots	user can click on a particular parking slot.	1	Kartik Tiware	09- 10- 2018	
2	SB2/ US6	Us er	if parking is available	it will show how many spaces are available.	1	Kartik Tiware	09- Oct- 18	
2	SB2/ US7	Us er	is free to see parking availability	no charges will be there	1	Kartik Tiware	16- Oct- 18	
2	SB2/ US8	Us er	is free to see parking availability anytime	no time boundations will be there	1	Kartik Tiware	16- Oct- 18	
2	SB2/ US9	Us er	can see Parking with normal Internet Connection	No Fast Internet will be needed	1	Kartik Tiware	16- Oct- 18	
2	SB2/ US1 0	Us er	prediction of two wheelers	will be shown separate for two wheelers	2	Kartik Tiware	16- Oct- 18	
2	SB2/ US1	Us er	prediction of three wheelers	will be shown separate for three wheelers	5	Kartik Tiware	16- Oct- 18	

	1							
2	SB2/ US1 2	Us er	prediction of four wheelers	will be shown separate for four wheelers	4	Kartik Tiwari	23- Oct- 18	
2	SB2/ US1 3	Us er	it will predict that	till when the parking will be available.	4	Kartik Tiwari	23- Oct- 18	
2	SB2/ US1 4	Us er	if parking is not available	it will display that parking is not available.	5	Mahesh Meena	23- Oct- 18	
3	SB3/ US1	Us er	prediction will be maintained for parking	till what time parking will be full.	3	Mahesh Meena	23- Oct- 18	
3	SB3/ US2	Us er	separate spaces for two wheelers	two wheelers have different parking.	4	Mahesh Meena	30- Oct- 18	
3	SB3/ US3	Us er	separate spaces for three wheelers	three wheelers have different parking.	4	Mahesh Meena	30- Oct- 18	
3	SB3/ US4	Us er	separate spaces for four wheelers	four wheelers have different parking.	4	Mahesh Meena	30- Oct- 18	
3	SB3/ US5	Us er	all the public parking lots will be covered	parking problems will be reduced.	4	Mahesh Meena	30- Oct- 18	
3	SB3/ US6	Us er	if area has Parking Lot for two wheelers	only two wheelers vehicles will be parked	5	Mahesh Meena	07- Oct- 18	
3	SB3/ US7	Us er	if area has Parking Lot for three wheelers	only three wheelers vehicles will be parked	4	Mahesh Meena	01- Jan- 19	
3	SB3/ US8	Us er	if area has Parking Lot for four wheelers	only four wheelers vehicles will be parked	4	Mahesh Meena	02- Jan- 19	
3	SB3/ US9	Us er	prediction will also tell that	till what time parking will be full or empty.	1	Mahesh Meena	03- Jan- 19	
3	SB3/ US1 0	Us er	parking will be available only for selected areas	the areas will cover all the nearby parking lots.	1	Mahesh Meena	04- Jan- 19	
3	SB3/ US1 1	Us er	two wheelers parking will be mentioned seperately	two wheelers can park seperately.	1	Mahesh Meena	05- Jan- 19	
3	SB3/ US1 2	Us er	three wheelers parking will be mentioned separately	three wheelers can park seperately.	3	Mahesh Meena	06- Jan- 19	
3	SB3/ US1 3	Us er	no parking charges will be there	as it is a free parking slot.	2	Mahesh Meena	07- Jan- 19	
4	SB4/ US1	Us er	provide some driving tips	user can follow it for his/her own good.	2	Mahesh Meena	08- Jan- 19	
4	SB4/ US2	Ad mi n	put insert queries	I can insert new queries in the database.	4	Mahesh Meena	09- Jan- 19	
4	SB4/ US3	Ad mi n	put update queries	I can update the existing records.	1	Mahesh Meena	10- Jan- 19	

4	SB4/ US4	Ad mi n	put select queries	I can view the records.	6	Mahesh Meena	01- Feb- 19	
4	SB4/ US5	Ad mi n	put delete queries	I can remove the unwanted records.	2	Mahesh Meena	02- Feb- 19	
4	SB4/ US6	Ad mi n	take a backup	I can save old records for future use.	2	Mahesh Meena	03- Feb- 19	
4	SB4/ US7	Ad mi n	delete a backup	I can delete the unwanted backup.	3	Mahesh Meena	04- Feb- 19	
4	SB4/ US8	Ad mi n	can add new parking lot	if any other parking lot is built	2	Mahesh Meena	05- Feb- 19	
4	SB4/ US9	Ad mi n	can delete a parking lot	if parking lot is demolished	1	Mahesh Meena	06- Feb- 19	
4	SB4/ US1 0	Ad mi n	can add new area	for new parking lot	1	Mahesh Meena	07- Feb- 19	
4	SB4/ US1 1	Ad mi n	can delete area	if no parking lot is there in that area	1	Mahesh Meena	08- Feb- 19	
4	SB4/ US1 2	Us er	give feedback or suggestions	the service can be improved.	2	Mahesh Meena	09- Feb- 19	

2. Sprint Backlog-1

User is required to register to the portal for accessing the system. After his email is verified, user can have access to the portal. User can update his profile. User is required to enter the necessary information so that his booking can be confirmed. He/she can also send feedback to owner & admin regarding any issues.

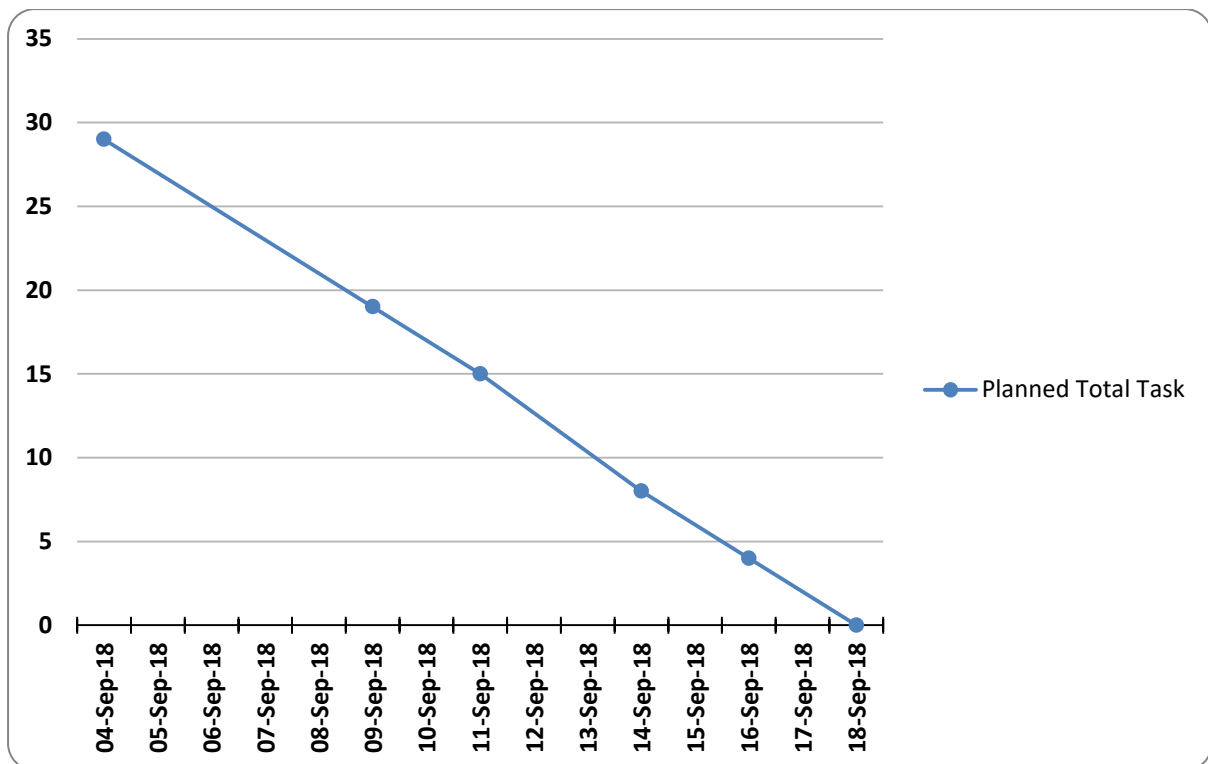
SPRINT BACKLOG 1

US ID	USER STORY	TASK ID	TASKS	TM	STATUS (NOT STARTED / IN PROGRESS / COMPLETED)	ESTIMATED DATE OF TASK COMPLETION
SPRINT 1 - Smart Parking System						
SB1/ US1	open web portal	SB1/ D1/T 1	Designing of GUI	Kartik Tiwari	Completed	22-Sep-18
		SB1/ D1/T 2	Validating user input at client level.	Kartik Tiwari	Completed	22-Sep-18
		SB1/ D1/T 3	Validating user input at server level.	Kartik Tiwari	Completed	22-Sep-18
		SB1/ D1/T 4	Connection with Database to insert the data.	Kartik Tiwari	Completed	22-Sep-18
		SB1/ D1/T 5	Testing of the module on localhost and then on server.	Kartik Tiwari	Completed	22-Sep-18
SB1/ US2	Registers Himself/Herself	SB1/ D2/T 1	Designing of GUI	Kartik Tiwari	Completed	22-Sep-18
		SB1/ D2/T 2	Apply CSS	Kartik Tiwari	Completed	29-Sep-18
		SB1/ D2/T 3	Connection with Database to insert the data.	Kartik Tiwari	Completed	29-Sep-18
SB1/	sign's in	SB1/	Designing of GUI	Kartik	Comple	29-Sep-

US3		D3/T 1		Tiwari	ted	18
		SB1/ D3/T 2	Apply CSS	Kartik Tiwari	Comple ted	29-Sep- 18
		SB1/ D3/T 3	Connection with Database to insert the data.	Kartik Tiwari	Comple ted	02-Oct- 18
SB1/ US4	will register only single parking lot	SB1/ D4/T 1	Designing of GUI	Kartik Tiwari	Comple ted	02-Oct- 18
		SB1/ D4/T 2	Validating user input at client level.	Kartik Tiwari	Comple ted	02-Oct- 18
		SB1/ D4/T 3	Validating user input at server level.	Kartik Tiwari	Comple ted	02-Oct- 18
		SB1/ D4/T 4	control the activities of vehicles.	Kartik Tiwari	Comple ted	02-Oct- 18
SB1/ US5	will keep record of vehicles	SB1/ D5/T 1	Apply CSS	Kartik Tiwari	Comple ted	09-Oct- 18
		SB1/ D5/T 2	Creating connection file in jsp for database connectivity.	Kartik Tiwari	Comple ted	09-Oct- 18
		SB1/ D5/T 3	insert parking slots chosen into the database.	Kartik Tiwari	Comple ted	09-Oct- 18
SB1/ US6	mention the number of spaces available	SB1/ D6/T 1	Apply CSS	Kartik Tiwari	Comple ted	09-Oct- 18
		SB1/ D6/T 2	Creating connection file in jsp for database connectivity.	Kartik Tiwari	Comple ted	16-Oct- 18
		SB1/ D6/T 3	insert all the parking slots chosen into the database.	Kartik Tiwari	Comple ted	16-Oct- 18
	mention the time period of availability of spaces	SB1/ D7/T 1	Designing of GUI	Kartik Tiwari	Comple ted	16-Oct- 18
		SB1/ D7/T 2	Validating user input at client level.	Kartik Tiwari	Comple ted	16-Oct- 18
		SB1/ D7/T 3	Validating user input at server level.	Kartik Tiwari	Comple ted	16-Oct- 18
		SB1/ D7/T 4	Analysis of parking slots to predict the available parkings.	Kartik Tiwari	Comple ted	23-Oct- 18
SB1/ US8	control incoming vehicles	SB1/ D8/T 1	Designing of GUI	Mahes h Meena	Comple ted	23-Oct- 18

		SB1/D8/T2	Apply JSP	Mahesh Meena	Completed	23-Oct-18
		SB1/D8/T3	Connection with Database to change the number of spaces.	Mahesh Meena	Completed	23-Oct-18
		SB1/D8/T4	Fetching of value of number of spaces available.	Mahesh Meena	Completed	30-Oct-18
SB1/US9	control outgoing vehicles	SB1/D9/T1	Designing of GUI	Mahesh Meena	Completed	30-Oct-18
		SB1/D9/T2	Validating user input at client level.	Mahesh Meena	Completed	30-Oct-18
		SB1/D9/T3	Validating user input at server level.	Mahesh Meena	Completed	30-Oct-18
		SB1/D9/T4	Analysis of parking slots to predict the available parkings.	Mahesh Meena	Completed	07-Oct-18
SB1/US10	register only free parking lots	SB1/D10/T1	Designing of GUI	Mahesh Meena	Completed	07-Oct-18
		SB1/D10/T2	Validating user input at client level.	Mahesh Meena	Completed	07-Oct-18
		SB1/D10/T3	Validating user input at server level.	Mahesh Meena	Completed	07-Oct-18
		SB1/D10/T4	Analysis of parking slots to predict the available parkings.	Mahesh Meena	Completed	07-Oct-18
SB1/US11	cover all the parking lots	SB1/D11/T1	Designing of GUI	Mahesh Meena	Completed	14-Oct-18
		SB1/D11/T2	Validating user input at client level.	Mahesh Meena	Completed	14-Oct-18
		SB1/D11/T3	Validating user input at server level.	Mahesh Meena	Completed	14-Oct-18
		SB1/D11/T4	Analysis of parking slots to predict the available parkings.	Mahesh Meena	Completed	14-Oct-18
SB1/US12	predict the available parkings	SB1/D12/T1	Designing of GUI	Mahesh Meena	Completed	14-Oct-18
		SB1/D12/T2	Validating user input at client level.	Mahesh Meena	Completed	21-Oct-18

		SB1/ D12/ T3	Validating user input at server level.	Mahesh Meena	Completed	21-Oct-18
		SB1/ D12/ T4	Analysis of parking slots to predict the available parkings.	Mahesh Meena	Completed	21-Oct-18
SB1/ US1 3	change the number of spaces automatically	SB1/ D13/ T1	Designing of GUI	Mahesh Meena	Completed	21-Oct-18
		SB1/ D13/ T2	Validating user input at client level.	Mahesh Meena	Completed	21-Oct-18
		SB1/ D13/ T3	Validating user input at server level.	Mahesh Meena	Completed	21-Oct-18
		SB1/ D13/ T4	Analysis of parking slots to predict the available parkings.	Mahesh Meena	Completed	28-Oct-18



3. Sprint Backlog-2

The User will Enter Area and will see all the Available Parking Lots. If parking will be available then Message will be displayed. Separate Prediction will be there for two, three and four Wheelers.

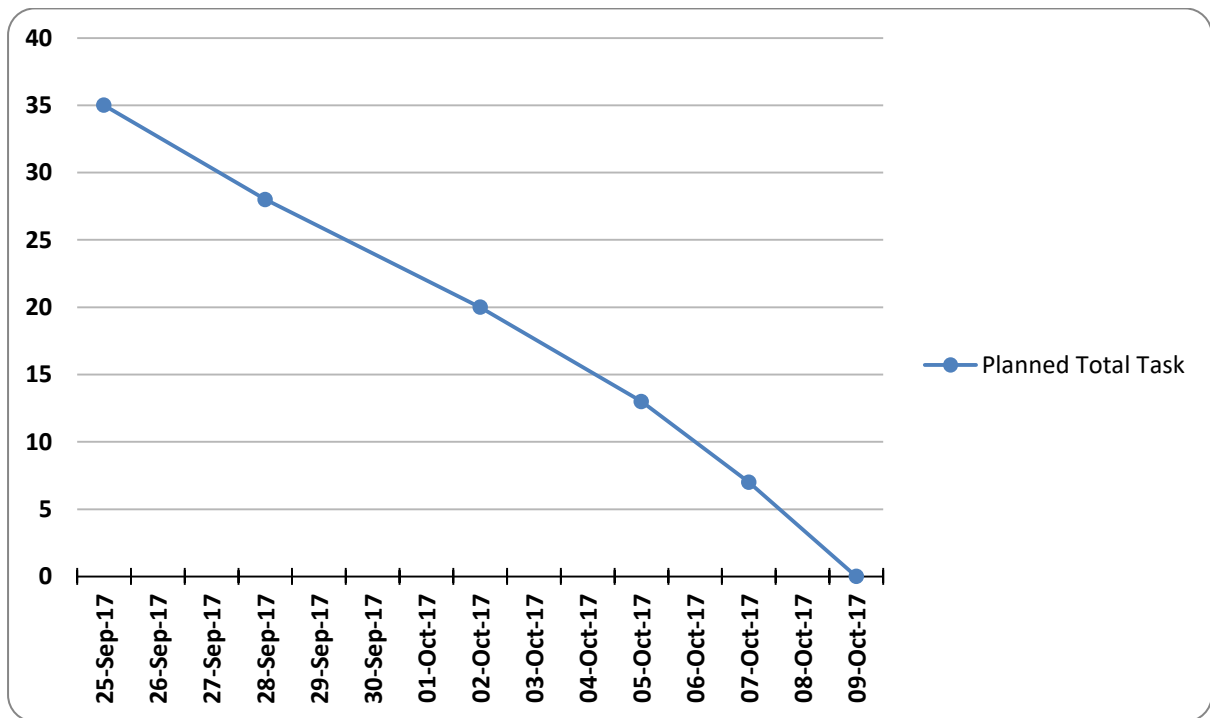
SPRINT BACKLOG 2

US ID	USER STORY	TASK ID	TASKS	TM	STATUS (NOT STARTED / IN PROGRESS / COMPLETED)	ESTIMATED DATE OF TASK COMPLETION
SPRINT 2 - Smart Parking System						
SB2/ US1	display message if parking is available	SB2/ D1/T1	Designing of GUI	Kartik Tiwari	Completed	29-Sep-18
		SB2/ D1/T2	Connection with database to fetch the data	Kartik Tiwari	Completed	29-Sep-18
		SB2/ D1/T3	Fetching of parking slots.	Kartik Tiwari	Completed	29-Sep-18
		SB2/ D1/T4	Displaying the message.	Kartik Tiwari	Completed	29-Sep-18
SB2/ US2	display all the nearby parking slots	SB2/ D2/T1	Designing of GUI	Kartik Tiwari	Completed	02-Oct-18
		SB2/ D2/T2	Connection with database to fetch the data	Kartik Tiwari	Completed	02-Oct-18
		SB2/ D2/T3	Fetching of all the nearby parking slots.	Kartik Tiwari	Completed	02-Oct-18
		SB2/ D2/T4	Displaying the message.	Kartik Tiwari	Completed	02-Oct-18
SB2/ US3	paid parking has different criteria	SB2/ D3/T1	Designing of GUI	Kartik Tiwari	Completed	02-Oct-18
		SB2/ D3/T2	Connection with database to fetch the data	Kartik Tiwari	Completed	09-Oct-18
		SB2/ D3/T3	if paid parking is found then give the different criteria	Kartik Tiwari	Completed	09-Oct-18
SB2/ US4	open web portal	SB2/ D4/T1	Designing of GUI	Kartik Tiwari	Completed	09-Oct-18
		SB2/ D4/T2	Validating user input at client level	Kartik Tiwari	Completed	09-Oct-18

		SB2/D4/T3	Validating user input at server level	Kartik Tiwari	Completed	16-Oct-18
		SB2/D4/T4	Connection with Database to insert the record.	Kartik Tiwari	Completed	16-Oct-18
		SB2/D4/T5	Testing of the module on localhost and then on server.	Kartik Tiwari	Completed	16-Oct-18
SB2/US5	display the parking lots	SB2/D5/T1	Designing of GUI	Kartik Tiwari	Completed	16-Oct-18
		SB2/D5/T2	Connection with database to fetch the data	Kartik Tiwari	Completed	16-Oct-18
		SB2/D5/T3	Fetching of all the parking slots.	Kartik Tiwari	Completed	23-Oct-18
		SB2/D5/T4	Display the parking slots via CSS.	Mahesh Meena	Completed	23-Oct-18
SB2/US6	if parking is available	SB2/D6/T1	Designing of GUI	Mahesh Meena	Completed	23-Oct-18
		SB2/D6/T2	Validating user input at client level	Mahesh Meena	Completed	23-Oct-18
		SB2/D6/T3	Validating user input at server level	Mahesh Meena	Completed	30-Oct-18
		SB2/D6/T4	Connection with Database to search the record.	Mahesh Meena	Completed	30-Oct-18
		SB2/D6/T5	Check the number of spaces available.	Mahesh Meena	Completed	30-Oct-18
SB2/US7	is free to see parking availability	SB2/D7/T1	Designing of GUI	Mahesh Meena	Completed	30-Oct-18
		SB2/D7/T2	Validating user input at client level	Mahesh Meena	Completed	07-Oct-18
		SB2/D7/T3	Validating user input at server level	Mahesh Meena	Completed	07-Oct-18
		SB2/D7/T4	Connection with Database to search the record.	Mahesh Meena	Completed	07-Oct-18
		SB2/D7/T5	Check the most usual time period of empty parking.	Mahesh Meena	Completed	07-Oct-18
SB2/US8	is free to see parking availability anytime	SB2/D8/T1	Designing of GUI	Mahesh Meena	Completed	07-Oct-18
		SB2/D8/T2	Validating user input at client level	Mahesh Meena	Completed	14-Oct-18
		SB2/D8/T3	Validating user input at server level	Mahesh Meena	Completed	14-Oct-18
		SB2/D8/T4	Connection with Database to search the record.	Mahesh Meena	Completed	14-Oct-18
		SB2/D8/T5	Display the availability of parkings.	Mahesh Meena	Completed	14-Oct-18
SB2/US9	can see Parking with normal Internet Connection	SB2/D9/T1	Designing of GUI	Mahesh Meena	Completed	14-Oct-18
		SB2/D9/T2	Validating user input at client level	Mahesh Meena	Completed	21-Oct-18
		SB2/D9/T3	Validating user input at server level	Mahesh Meena	Completed	21-Oct-18
		SB2/D9/T4	Connection with Database to search the record.	Mahesh Meena	Completed	21-Oct-18
SB2/	prediction of two	SB2/	Designing of GUI	Mahesh	Completed	21-Oct-

US10	wheelers	D10/T 1		Meena	ed	18
		SB2/ D10/T 2	Validating user input at client level	Mahesh Meena	Completed	21-Oct-18
		SB2/ D10/T 3	Validating user input at server level	Mahesh Meena	Completed	21-Oct-18
		SB2/ D10/T 4	Connection with Database to search the record.	Mahesh Meena	Completed	22-Oct-18
SB2/ US11	prediction of three wheelers	SB2/ D11/T 1	Designing of GUI	Mahesh Meena	Completed	23-Oct-18
		SB2/ D11/T 2	Validating user input at client level	Mahesh Meena	Completed	24-Oct-18
		SB2/ D11/T 3	Validating user input at server level	Mahesh Meena	Completed	25-Oct-18
		SB2/ D11/T 4	Connection with Database to search the record.	Mahesh Meena	Completed	26-Oct-18
SB2/ US12	prediction of four wheelers	SB2/ D12/T 1	Designing of GUI	Mahesh Meena	Completed	27-Oct-18
		SB2/ D12/T 2	Validating user input at client level	Mahesh Meena	Completed	28-Oct-18
		SB2/ D12/T 3	Validating user input at server level	Mahesh Meena	Completed	28-Oct-18
		SB2/ D12/T 4	Connection with Database to search the record.	Mahesh Meena	Completed	28-Oct-18
SB2/ US13	it will predict that	SB2/ D13/T 1	Designing of GUI	Mahesh Meena	Completed	28-Oct-18
		SB2/ D13/T 2	Validating user input at client level	Mahesh Meena	In progress	28-Oct-18
		SB2/ D13/T 3	Validating user input at server level	Mahesh Meena	In progress	28-Oct-18
		SB2/ D13/T 4	Connection with Database to search the record.	Mahesh Meena	In progress	28-Oct-18
SB2/ US14	if parking is not available	SB2/ D14/T 1	Designing of GUI	Mahesh Meena	In progress	28-Oct-18
		SB2/ D14/T 2	Validating user input at client level	Mahesh Meena	In progress	28-Oct-18

		SB2/ D14/T 3	Validating user input at server level	Mahesh Meena	In progress	28-Oct- 18
		SB2/ D14/T 4	Connection with Database to search the record.	Mahesh Meena	In progress	28-Oct- 18



4. Sprint Backlog-3

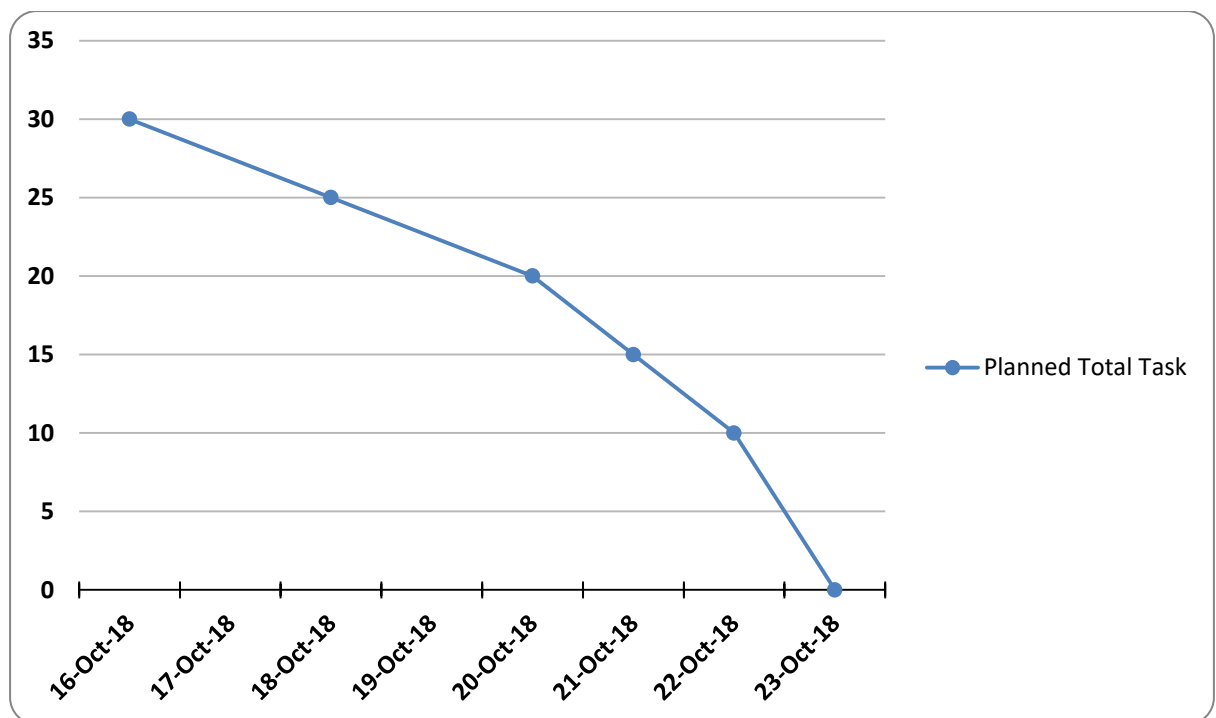
The time of parking will be seen and at what time the Parking will get full or at what time the parking will get empty.

SPRINT BACKLOG 3

US ID	USER STORY	TASK ID	TASKS	TM	STATUS (NOT STARTED / IN PROGRESS / COMPLETED)	ESTIMATED DATE OF TASK COMPLETION
SPRINT 3 - Smart Parking System						
SB3 /US 1	till what time parking will be full	SB3/D1/T 1	Designing of GUI	Aniket Mathur	Completed	01 Jan. 2019
		SB3/D1/T 2	Validating user input at client level.	Aniket Mathur	Completed	2 Jan. 2019
		SB3/D1/T 3	Validating user input at server level.	Aniket Mathur	Completed	3 Jan. 2019
		SB3/D1/T 4	Mention available time for full parking	Aniket Mathur	Completed	4 Jan. 2019
SB3 /US 2	separate spaces for multiple vehicles	SB3/D2/T 1	Designing of GUI	Aniket Mathur	Completed	5 Jan. 2019
		SB3/D2/T 2	Validating user input at client level.	Aniket Mathur	Completed	6 Jan. 2019
		SB3/D2/T 3	Validating user input at server level.	Aniket Mathur	Completed	7 Jan. 2019
		SB3/D2/T 4	Connection with Database to insert the separate spaces.	Aniket Mathur	Completed	8 Jan. 2019
		SB3/D2/T 5	Different vehicles choose different spaces.	Aniket Mathur	Completed	9 Jan. 2019
SB3 /US	all public parking slots	SB3/D3/T	Designing of GUI	Aniket Mathur	Completed	10 Jan. 2019

3	will be covered	1				
		SB3/ D3/T 2	Validating user input at client level.	Aniket Mathur	Completed	11 Jan. 2019
		SB3/ D3/T 3	Validating user input at server level.	Aniket Mathur	Completed	12 Jan. 2019
		SB3/ D3/T 4	Fetching of all the public parking slots.	Kartik Tiwari	Completed	13 Jan. 2019
SB3 /US 4	till what time parking will be empty	SB3/ D4/T 1	Designing of GUI	Kartik Tiwari	Completed	14 Jan. 2019
		SB3/ D4/T 2	Validating user input at client level.	Kartik Tiwari	Completed	1 Feb. 2019
		SB3/ D4/T 3	Validating user input at server level.	Kartik Tiwari	Completed	2 Feb. 2019
		SB3/ D4/T 4	Mention available time for empty parking	Kartik Tiwari	Completed	3 Feb. 2019
SB3 /US 5	parking will be available only for selected areas	SB3/ D5/T 1	Designing of GUI	Kartik Tiwari	Completed	4 Feb. 2019
		SB3/ D5/T 2	Validating user input at client level.	Kartik Tiwari	Completed	5 Feb. 2019
		SB3/ D5/T 3	Validating user input at server level.	Kartik Tiwari	Completed	6 Feb. 2019
		SB3/ D5/T 4	Connection with Database to insert the selected areas.	Kartik Tiwari	Completed	7 Feb. 2019
		SB3/ D5/T 5	Matching of selected areas to the parkings.	Kartik Tiwari	Completed	8 Feb. 2019
SB3 /US 6	two wheelers will park seperately	SB3/ D6/T 1	Designing of GUI	Kartik Tiwari	Completed	9 Feb. 2019
		SB3/ D6/T 2	Validating user input at client level.	Kartik Tiwari	Completed	10 Feb. 2019
		SB3/ D6/T 3	Validating user input at server level.	Kartik Tiwari	Completed	11 Feb. 2019
		SB3/ D6/T 4	Connection with Database to insert parking for two wheelers.	Mahesh Meena	Completed	12 Feb. 2019
		SB3/ D6/T 5	arrange vehicles according to their type.	Mahesh Meena	Completed	13 Feb. 2019
SB3	three wheelers will	SB3/	Designing of GUI	Mahesh	Comple	14 Feb.

/US 7	park separately	D7/T 1		Meena	ted	2019
		SB3/ D7/T 2	Validating user input at client level.	Mahesh Meena	Completed	15 Feb. 2019
		SB3/ D7/T 3	Validating user input at server level.	Mahesh Meena	Completed	16 Feb. 2019
		SB3/ D7/T 4	Connection with Database to insert parking for three wheelers.	Mahesh Meena	Completed	17 Feb. 2019
		SB3/ D7/T 5	arrange vehicles according to their type.	Mahesh Meena	Completed	18 Feb. 2019
SB3 /US 8	No parking charges will be there	SB3/ D8/T 1	Designing of GUI	Mahesh Meena	Completed	19 Feb. 2019
		SB3/ D8/T 2	Connection with Database to insert the data.	Mahesh Meena	Completed	20 Feb. 2019
		SB3/ D8/T 3	no charges will be applied for parking.	Mahesh Meena	Completed	21 Feb. 2019



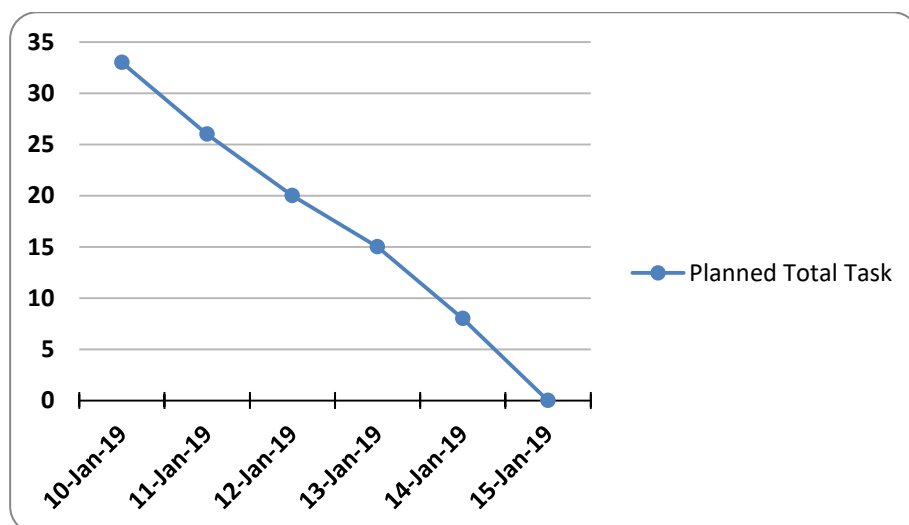
5. Sprint Backlog-4

The Owner of the parking lot will enter the area for parking and can update the area or can delete the area also. The owner will take feedback and suggestions. A proper database will be maintained and proper details of parking lot will be updated.

SPRINT BACKLOG 4

US ID	USER STORY	TASK ID	TASKS	TM	STATUS (NOT STARTED / IN PROGRESS / COMPLETED)	ESTIMATED DATE OF TASK COMPLETION
SPRINT 4 - Smart Parking System						
SB4/US1	provide some driving tips	SB4/D1/T1	Creating a web page including driving tips.	Aniket Mathur	In progress	01-03-2019
		SB4/D1/T2	Apply CSS.	Aniket Mathur	In progress	02-03-2019
		SB4/D1/T3	Apply Designing.	Aniket Mathur	In progress	03-03-2019
SB4/US2	put insert queries	SB4/D2/T1	Designing of GUI	Aniket Mathur	In progress	04-03-2019
		SB4/D2/T2	Validating user input at client level.	Aniket Mathur	In progress	05-03-2019
		SB4/D2/T3	Validating user input at server level.	Aniket Mathur	In progress	06-03-2019
		SB4/D2/T4	Connection with Database to insert the parking records.	Aniket Mathur	In progress	07-03-2019
SB4/US3	put update queries	SB4/D3/T1	Designing of GUI	Aniket Mathur	In progress	08-03-2019
		SB4/D3/T2	Validating user input at client level.	Kartik Tiwari	In progress	09-03-2019
		SB4/D3/T3	Validating user input at server level.	Kartik Tiwari	In progress	10-03-2019
		SB4/D3/T4	Connection with Database to update the parking records.	Kartik Tiwari	In progress	11-03-2019
SB4/US4	put select queries	SB4/D4/T1	Designing of GUI	Kartik Tiwari	In progress	12-03-2019
		SB4/D4/T2	Validating user input at client level.	Kartik Tiwari	In progress	13-03-2019
		SB4/D4/T3	Validating user input at server level.	Kartik Tiwari	In progress	14-03-2019

		SB4/ D4/T4	Connection with Database to search the parking records.	Kartik Tiwari	In progress	15-03-2019
SB4/ US5	put delete queries	SB4/ D5/T1	Designing of GUI	Kartik Tiwari	In progress	16-03-2019
		SB4/ D5/T2	Validating user input at client level.	Kartik Tiwari	In progress	17-03-2019
		SB4/ D5/T3	Validating user input at server level.	Kartik Tiwari	In progress	18-03-2019
		SB4/ D5/T4	Connection with Database to delere the parking records.	Kartik Tiwari	In progress	19-03-2019
SB4/ US6	Take a backup	SB4/ D6/T1	Designing of GUI	Kartik Tiwari	In progress	20-03-2019
		SB4/ D6/T2	Validating user input at client level.	Mahesh Meena	In progress	21-03-2019
		SB4/ D6/T3	Validating user input at server level.	Mahesh Meena	In progress	22-03-2019
		SB4/ D6/T4	Connection with Database to take a backup of parkings.	Mahesh Meena	In progress	23-03-2019
SB4/ US7	Delete a backup	SB4/ D7/T1	Designing of GUI	Mahesh Meena	In progress	24-03-2019
		SB4/ D7/T2	Validating user input at client level.	Mahesh Meena	In progress	25-03-2019
		SB4/ D7/T3	Validating user input at server level.	Mahesh Meena	In progress	26-03-2019
		SB4/ D7/T4	Connection with Database to delete an existing backup.	Mahesh Meena	In progress	27-03-2019
SB4/ US8	Give feedback or suggestions	SB4/ D8/T1	Designing of GUI	Mahesh Meena	In progress	28-03-2019
		SB4/ D8/T2	Validating user input at client level.	Mahesh Meena	In progress	29-03-2019
		SB4/ D8/T3	Validating user input at server level.	Mahesh Meena	In progress	30-03-2019
		SB4/ D8/T4	Connection with Database to insert the user's feedback.	Mahesh Meena	In progress	31-03-2019
		SB4/ D8/T5	Testing the module on localhost & then on server.	Mahesh Meena	In progress	01-04-2019



CHAPTER 3

TECHNOLOGY APPLIED AND PROJECT MANAGEMENT

Project management :

Project management is the application of processes, methods, knowledge, skills and experience to achieve the project objectives. General. A project is a unique, transient endeavor, undertaken to achieve planned objectives, which could be defined in terms of outputs, outcomes or benefits.

Project management is the practice of initiating, planning, executing, controlling, and closing the work of a team to achieve specific goals and meet specific success criteria at the specified time. A project is a temporary endeavor designed to produce a unique product, service or result with a defined beginning and end undertaken to meet unique goals and objectives, typically to bring about beneficial change or added value. The temporary nature of projects stands in contrast with business as usual, which are repetitive, permanent, or semi-permanent functional activities to produce products or services. In practice, the management of such distinct production approaches requires the development of distinct technical skills and management strategies.

Software project management

Software project management is the art and science of planning and leading software projects. It is a sub-discipline of project management in which software projects are planned, implemented, monitored and controlled.

The job pattern of an IT company engaged in software development can be seen split in two parts:

- Software Creation
- Software Project Management

A project is well-defined task, which is a collection of several operations done in order to achieve a goal (for example, software development and delivery). A Project can be characterized as:

- Every project may have a unique and distinct goal.
- Project is not routine activity or day-to-day operations.
- Project comes with a start time and end time.
- Project ends when its goal is achieved hence it is a temporary phase in the lifetime of an organization.
- Project needs adequate resources in terms of time, manpower, finance, material and knowledge-bank.

Software Project

A Software Project is the complete procedure of software development from requirement gathering to testing and maintenance, carried out according to the execution methodologies, in a specified period of time to achieve intended software product.

Need of software project management

Software is said to be an intangible product. Software development is a kind of all new stream in world business and there's very little experience in building software products. Most software products are tailor made to fit client's requirements. The most important is that the underlying technology changes and advances so frequently and rapidly that experience of one product may not be applied to the other one. All such business and environmental constraints bring risk in software development hence it is essential to manage software projects efficiently.



The image above shows triple constraints for software projects. It is an essential part of software organization to deliver quality product, keeping the cost within client's budget constrain and deliver the project as per scheduled. There are several factors, both internal and external, which may impact this triple constrain triangle. Any of three factor can severely impact the other two.

Therefore, software project management is essential to incorporate user requirements along with budget and time constraints.

Software Project Manager

A software project manager is a person who undertakes the responsibility of executing the software project. Software project manager is thoroughly aware of all the phases of SDLC that the software would go through. Project manager may never directly involve in producing the end product but he controls and manages the activities involved in production.

A project manager closely monitors the development process, prepares and executes various plans, arranges necessary and adequate resources, maintains communication among all team members in order to address issues of cost, budget, resources, time, quality and customer satisfaction.

Let us see few responsibilities that a project manager shoulders -

Managing People

- Act as project leader
- Liaison with stakeholders
- Managing human resources
- Setting up reporting hierarchy etc.

Managing Project

- Defining and setting up project scope
- Managing project management activities
- Monitoring progress and performance
- Risk analysis at every phase

- Take necessary step to avoid or come out of problems
- Act as project spokesperson

Software Management Activities

Software project management comprises of a number of activities, which contains planning of project, deciding scope of software product, estimation of cost in various terms, scheduling of tasks and events, and resource management. Project management activities may include:

- **Project Planning**
- **Scope Management**
- **Project Estimation**

Project Planning

Software project planning is task, which is performed before the production of software actually starts. It is there for the software production but involves no concrete activity that has any direction connection with software production; rather it is a set of multiple processes, which facilitates software production. Project planning may include the following:

Scope Management

It defines the scope of project; this includes all the activities, process need to be done in order to make a deliverable software product. Scope management is essential because it creates boundaries of the project by clearly defining what would be done in the project and what would not be done. This makes project to contain limited and quantifiable tasks, which can easily be documented and in turn avoids cost and time overrun.

During Project Scope management, it is necessary to -

- Define the scope
- Decide its verification and control
- Divide the project into various smaller parts for ease of management.
- Verify the scope
- Control the scope by incorporating changes to the scope

Project Estimation

For an effective management accurate estimation of various measures is a must. With correct estimation managers can manage and control the project more efficiently and effectively.

Project estimation may involve the following:

- **Software size estimation**

Software size may be estimated either in terms of KLOC (Kilo Line of Code) or by calculating number of function points in the software. Lines of code depend upon coding practices and Function points vary according to the user or software requirement.

- **Effort estimation**

The managers estimate efforts in terms of personnel requirement and man-hour required to produce the software. For effort estimation software size should be known. This can either be derived by managers' experience, organization's historical data or software size can be converted into efforts by using some standard formulae.

- **Time estimation**

Once size and efforts are estimated, the time required to produce the software can be estimated. An effort required is segregated into sub categories as per the requirement specifications and interdependency of various components of software. Software tasks are divided into smaller tasks, activities or events by Work Breakthrough Structure (WBS). The tasks are scheduled on day-to-day basis or in calendar months.

The sum of time required to complete all tasks in hours or days is the total time invested to complete the project.

- **Cost estimation**

This might be considered as the most difficult of all because it depends on more elements than any of the previous ones. For estimating project cost, it is required to consider -

- Size of software
- Software quality
- Hardware
- Additional software or tools, licenses etc.
- Skilled personnel with task-specific skills
- Travel involved
- Communication
- Training and support

Project Estimation Techniques

We discussed various parameters involving project estimation such as size, effort, time and cost. Project manager can estimate the listed factors using two broadly recognized techniques

Decomposition Technique

This technique assumes the software as a product of various compositions.

There are two main models -

- **Line of Code** Estimation is done on behalf of number of line of codes in the software product.
- **Function Points** Estimation is done on behalf of number of function points in the software product.

Empirical Estimation Technique

This technique uses empirically derived formulae to make estimation. These formulae are based on LOC or FPs.

- **Putnam Model**

This model is made by Lawrence H. Putnam, which is based on Norden's frequency distribution (Rayleigh curve). Putnam model maps time and efforts required with software size.

- **COCOMO**

COCOMO stands for CONstructiveCOstMOdel, developed by Barry W. Boehm. It divides the software product into three categories of software: organic, semi-detached and embedded.

Project Scheduling

Project Scheduling in a project refers to roadmap of all activities to be done with specified order and within time slot allotted to each activity. Project managers tend to define various tasks, and project milestones and they arrange them keeping various factors in mind. They look for tasks lie in critical path in the schedule, which are necessary to complete in specific manner and strictly within the time allocated. Arrangement of tasks which lies out of critical path are less likely to impact over all schedule of the project.

For scheduling a project, it is necessary to -

- Break down the project tasks into smaller, manageable form
- Find out various tasks and correlate them
- Estimate time frame required for each task
- Divide time into work-units
- Assign adequate number of work-units for each task
- Calculate total time required for the project from start to finish

Resource management

All elements used to develop a software product may be assumed as resource for that project. This may include human resource, productive tools and software libraries.

The resources are available in limited quantity and stay in the organization as a pool of assets. The shortage of resources hampers the development of project and it can lag behind the schedule. Allocating extra resources increases development cost in the end. It is therefore necessary to estimate and allocate adequate resources for the project.

Resource management includes -

- Defining proper organization project by creating a project team and allocating responsibilities to each team member
- Determining resources required at a particular stage and their availability
- Manage Resources by generating resource request when they are required and de-allocating them when they are no more needed.

Project Risk Management

Risk management involves all activities pertaining to identification, analysing and making provision for predictable and non-predictable risks in the project. Risk may include the following:

- Experienced staff leaving the project and new staff coming in.
- Change in organizational management.
- Requirement change or misinterpreting requirement.
- Under-estimation of required time and resources.
- Technological changes, environmental changes, business competition.

Risk Management Process

There are following activities involved in risk management process:

- **Identification** - Make note of all possible risks, which may occur in the project.
- **Categorize** - Categorize known risks into high, medium and low risk intensity as per their possible impact on the project.
- **Manage** - Analyse the probability of occurrence of risks at various phases. Make plan to avoid or face risks. Attempt to minimize their side-effects.
- **Monitor** - Closely monitor the potential risks and their early symptoms. Also monitor the effects of steps taken to mitigate or avoid them.

Project Execution & Monitoring

In this phase, the tasks described in project plans are executed according to their schedules.

Execution needs monitoring in order to check whether everything is going according to the plan. Monitoring is observing to check the probability of risk and taking measures to address the risk or report the status of various tasks.

These measures include -

- **Activity Monitoring** - All activities scheduled within some task can be monitored on day-to-day basis. When all activities in a task are completed, it is considered as complete.
- **Status Reports** - The reports contain status of activities and tasks completed within a given time frame, generally a week. Status can be marked as finished, pending or work-in-progress etc.
- **Milestones Checklist** - Every project is divided into multiple phases where major tasks are performed (milestones) based on the phases of SDLC. This milestone checklist is prepared once every few weeks and reports the status of milestones.

Project Communication Management

Effective communication plays vital role in the success of a project. It bridges gaps between client and the organization, among the team members as well as other stake holders in the project such as hardware suppliers.

Communication can be oral or written. Communication management process may have the following steps:

- **Planning** - This step includes the identifications of all the stakeholders in the project and the mode of communication among them. It also considers if any additional communication facilities are required.
- **Sharing** - After determining various aspects of planning, manager focuses on sharing correct information with the correct person on correct time. This keeps everyone involved the project up to date with project progress and its status.
- **Feedback** - Project managers use various measures and feedback mechanism and create status and performance reports. This mechanism ensures that input from various stakeholders is coming to the project manager as their feedback.
- **Closure** - At the end of each major event, end of a phase of SDLC or end of the project itself, administrative closure is formally announced to update every

stakeholder by sending email, by distributing a hardcopy of document or by other mean of effective communication.

After closure, the team moves to next phase or project.

Configuration Management

Configuration management is a process of tracking and controlling the changes in software in terms of the requirements, design, functions and development of the product.

IEEE defines it as “the process of identifying and defining the items in the system, controlling the change of these items throughout their life cycle, recording and reporting the status of items and change requests, and verifying the completeness and correctness of items”.

Generally, once the SRS is finalized there is less chance of requirement of changes from user. If they occur, the changes are addressed only with prior approval of higher management, as there is a possibility of cost and time overrun.

Project management Tools:

Project management required tools to manage the work , time and resources. At present many of the software are available for project management. Some of the popular software tools are as follows.

01. Eclipse

Eclipse is an integrated development environment used in computer programming, and is the most widely used Java IDE. It contains a base workspace and an extensible plug-in system for customizing the environment.

02. Java Development Kit

The Java Development Kit is an implementation of either one of the Java Platform, Standard Edition, Java Platform, Enterprise Edition, or Java Platform, Micro Edition platforms released by Oracle Corporation in the form of a binary product aimed at Java developers on Solaris, Linux, macOS or Windows.

03. Apache Tomcat

Apache Tomcat, often referred to as Tomcat Server, is an open-source Java Servlet Container developed by the Apache Software Foundation (ASF). Tomcat implements several Java EE specifications including Java Servlet, JavaServer Pages (JSP), Java EL, and WebSocket, and provides a "pure Java" HTTP web server environment in which Java code can run.

04. MySQL

MySQL is an open-source relational database management system. Its name is a combination of “My”, the name of co-founders Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language. The most comprehensive set of advanced features, management tools and technical support to achieve the highest levels of MySQL scalability, security, reliability, and uptime.

05. Sublime Text

Sublime Text is a proprietary cross-platform source code editor with a Python application programming interface. It natively supports many programming languages and markup languages, and functions can be added by users with plugins, typically community-built and maintained under free-software licenses.

PO and Their Relevance to project

PO1: Engineering Knowledge: Apply the knowledge of mathematics, science, engineering fundamentals and an engineering specialization to the solution of complex engineering problems.

In this project creation process engineering knowledge of the software engineering and Electronics engineering have been applied. we have used software engineering , HTML,xml, java , android , java script , php , j2ee, data base , oracle , my sql , mango and other programming language and database to the project. We have applied all above engineering subjects in our projects.

PO2: 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.

In our projects we have identified an problem , once verified by the client we have worked to identify the solution using all of our theoretical and practical knowledge.

PO3: 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.

PO4: 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.

PO5: 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.

In the project development we have applied Integrated Development Environment IDE for the rapid development of the code, used web server for the software development.

PO6: 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.

In 1961, the Conference of Engineering Societies of Western Europe and the United States of America defined "professional engineer" as follows.

A professional engineer is competent by virtue of his/her fundamental education and training to apply the scientific method and outlook to the analysis and solution of engineering problems. He/she is able to assume personal responsibility for the development and application of engineering science and knowledge, notably in research, design, construction, manufacturing, superintending, managing and in the education of the engineer. His/her work is predominantly intellectual and varied and not of a routine mental or physical character. It requires the exercise of original thought and judgement and the ability to supervise the technical and administrative work of others. His/her education will have been such as to make him/her capable of closely and continuously following progress in his/her branch of engineering science by consulting newly published works on a worldwide basis, assimilating such information and applying it independently. He/she is thus placed in a position to make contributions to the development of engineering science or its applications. His/her education and training will have been such that he/she will have acquired a broad and general appreciation of the engineering sciences as well as thorough insight into the special features of his/her own branch. In due time he/she will be able to give authoritative technical advice and to assume responsibility for the direction of important tasks in his/her branch.

PO7: Environment and Sustainability: Understand the impact of the professional engineering solutions in and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

Project Title: SPS

Academic Year 2018-2019, PIET, Jaipur

Sustainability is the ability to continue a defined behavior indefinitely. Sometimes environmental, social and economic are termed to be the three pillars of sustainability.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. The ethics of engineers and the fundamental principles for Engineers are as follows.

Engineers uphold and advance the integrity, honour and dignity of the engineering profession by:

- I. Using their knowledge and skill for the enhancement of human welfare;
- II. Being honest and impartial, and servicing with fidelity the public, their employers and clients;
- III. Striving to increase the competence and prestige of the engineering profession; and
- IV. Supporting the professional and technical societies of their disciplines.

PO9. Individual and Team Work: Function effectively as an individual and as a member or leader in diverse teams, and in multidisciplinary settings.

To work successful in team a team member must have following capabilities.

1. The Ability to Listen

It is important to listen to one another's ideas. Too often in a business setting, you have a group of people simply waiting for their turn to speak, not paying one iota of attention to the persons on their left or right. So it is a good teamwork skill to have the ability to listen

2. Check Your Ego

This isn't saying abandon your ego all together, because that isn't healthy. But leaving your ego at the door temporarily is a very important team work skill. The reason this is so essential is because there is always someone better than you at something, no matter how brilliant you are.

3. Critique

By critique, I mean constructive criticism. Be able to give others constructive criticism and be able to listen to others critique your ideas and work. There shouldn't be any offense taken to constructive criticism. You all want to succeed, and this is a vital step in doing so.

4. Delegation

The mentality must be applied to teamwork. Delegate roles to those who do them best.

5. Show Respect

If you and another person happen to be paired up and can't stand each other, you can still put that aside for a couple of hours, treat each other civilly, and complete the tasks at hand. You may even overcome the dislike toward one another.

6. Be Helpful

This is simple. If one of your teammates does not understand an idea, discussion, or task that is being completed, take the necessary time to explain it to them and work with them. There are no weak links when everyone helps one another. Some take longer to learn than others, but that doesn't mean that they are of less intelligence. If in a meeting someone asks a question because they don't understand, don't frown at them. Just answer the questions patiently and concisely.

7. Question One Another

If someone brings up a topic of discussion and a solution to this topic, question them. Respectfully question, don't badger. Rather, ask them how it will work, why it will work over the long-run, and how everyone else can implement the idea.

8. Participation

Have the entire team encourage shy people to engage in the topics of discussion. Don't demand it, but make them realize that you really want to hear their ideas.

9. Rational Debate

Bad ideas are bad for teams. Spirited, friendly, rational debate is where facts come forward, ideas are born, and quality rises to the top.

10. Set the Right Environment

Try to make the space in which your team is assembled as comfortable, relaxing, and inviting as possible. You do not want your team to be tense and with frayed nerves.

PO 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.

PO11: Project Management and Finance: Demonstrate knowledge and understanding of the engineering 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.

Project management is the application of processes, methods, knowledge, skills and experience to achieve the project objectives. In general project is a unique, transient endeavour, undertaken to achieve planned objectives, which could be defined in terms of outputs, outcomes or benefits.

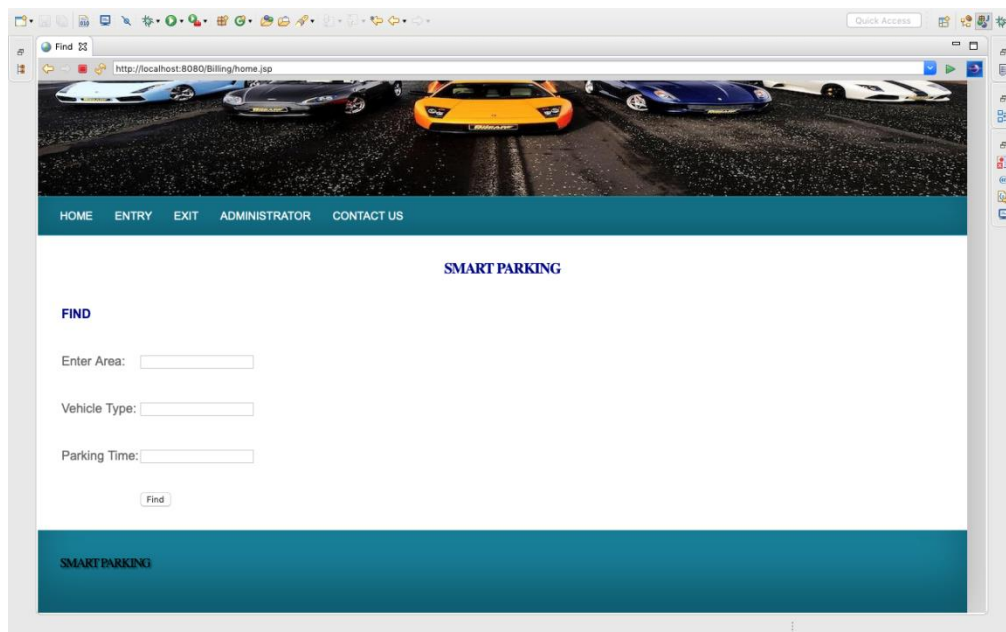
PO12: Life-Long Learning: Recognize the need for and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change.

Life Long Learning means is the provision or use of both formal and informal learning opportunities throughout people's lives in order to foster the continuous development and improvement of the knowledge and skills needed for employment and personal fulfillment

CHAPTER 4

PROJECT IMPLEMENTATION

1. Sprint Backlog 1



```
<? page language="java" contentType="text/html;
charset=UTF-8"
pageEncoding="UTF-8"%><? page
import="java.sql.*"%>
<!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01
Transitional//EN"
"http://www.w3.org/TR/html4/loose.dtd">
<html>
<head>
<meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
<title>Find</title>
<script>
var request;
function sendInfo()
{
var v=document.myform.findName.value;
```

```

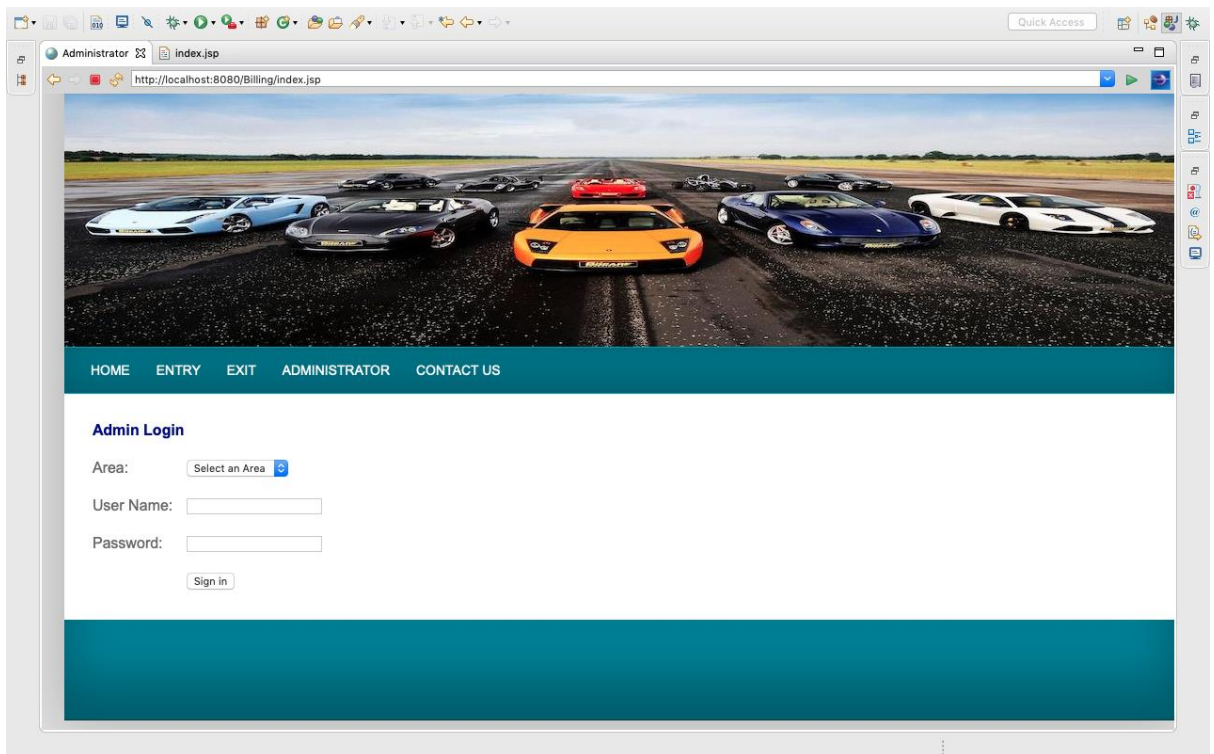
var url=&quot;findname.jsp?val=&quot;+v;
if(window.XMLHttpRequest){
request=new XMLHttpRequest();
}
else if(window.ActiveXObject){
request=new ActiveXObject(&quot;Microsoft.XMLHTTP&quot;);
}
try
{
request.onreadystatechange=getInfo;
request.open(&quot;GET&quot;,url,true);
request.send();
}
catch(e){
alert(&quot;Unable to connect to server&quot;);
}
}
function getInfo(){
if(request.readyState==4){
var val=request.responseText;
document.getElementById(&#39;location&#39;).innerHTML=val;
}
}

function sendGenInfo(name)
{
var v=name;
var url=&quot;getgeninfo.jsp?val=&quot;+v;
if(window.XMLHttpRequest){
request=new XMLHttpRequest();
}
else if(window.ActiveXObject){
request=new ActiveXObject(&quot;Microsoft.XMLHTTP&quot;);
}
try
{

request.onreadystatechange=getGenInfo;
request.open(&quot;GET&quot;,url,true);
request.send();
}
catch(e){
alert(&quot;Unable to connect to server&quot;);
}
}

```

2. Sprint Backlog-2



```
<%@ page language="java" import="java.util.*"
pageEncoding="ISO-8859-1"%>
<html>
<head>
<title>
New Registration
</title>
<script>

var request;
function sendInfo()
{
var v=document.myform.findName.value;
var url="findname1.jsp?val="+v;
if(window.XMLHttpRequest) {
request=new XMLHttpRequest();
}
else if(window.ActiveXObject) {
request=new ActiveXObject("Microsoft.XMLHTTP");
}
try
{
request.onreadystatechange=getInfo;
```

```

request.open("GET",url,true);
request.send();
}
catch(e){alert("Unable to connect to server");}
}

function getInfo(){
if(request.readyState==4){
var val=request.responseText;
document.getElementById('hi').innerHTML=val;
}
}

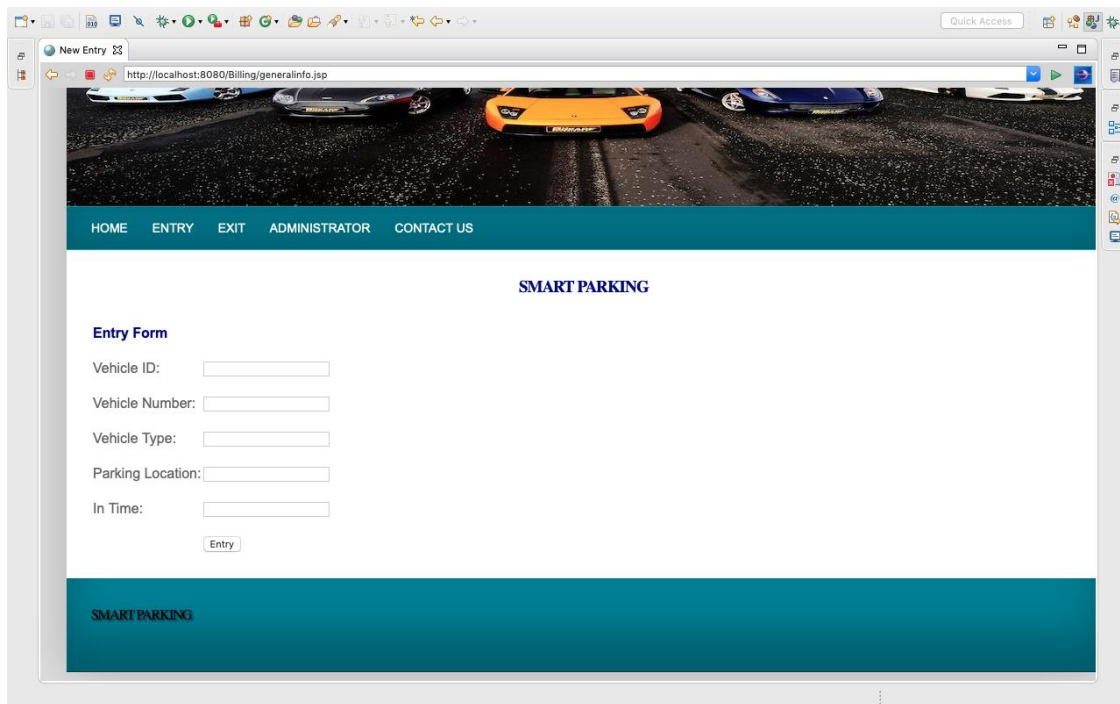
function getGenInfo(){
if(request.readyState==4){
var val=request.responseText;
document.getElementById('hello').innerHTML=val;
}
}

function setForm()
{
var url="setform.jsp";
if(window.XMLHttpRequest){
request=new XMLHttpRequest();
}
else if(window.ActiveXObject){
request=new ActiveXObject("Microsoft.XMLHTTP");
}
try
{
request.onreadystatechange=getForm;
request.open("GET",url,true);
request.send();
}
catch(e){alert("Unable to connect to server");}
}

function getForm(){
if(request.readyState==4){
var val=request.responseText;
document.getElementById('hello').innerHTML=val;
}
}

```

3. Sprint Backlog-3



```
<%@ page language="java" import="java.util.*"
pageEncoding="ISO-8859-1"%>
<%@ page import="java.sql.*"%>
<html>
<head>
```

```
<title>
```

```
New Entry
```

```
</title>
```

```
<script>
```

```
var request;
```

```
function sendInfo()
```

```
{
```

```
var v=document.myform.findName.value;
```

```
var url="findname1.jsp?val="+v;
```

```
if(window.XMLHttpRequest){
```

Project Title: SPS

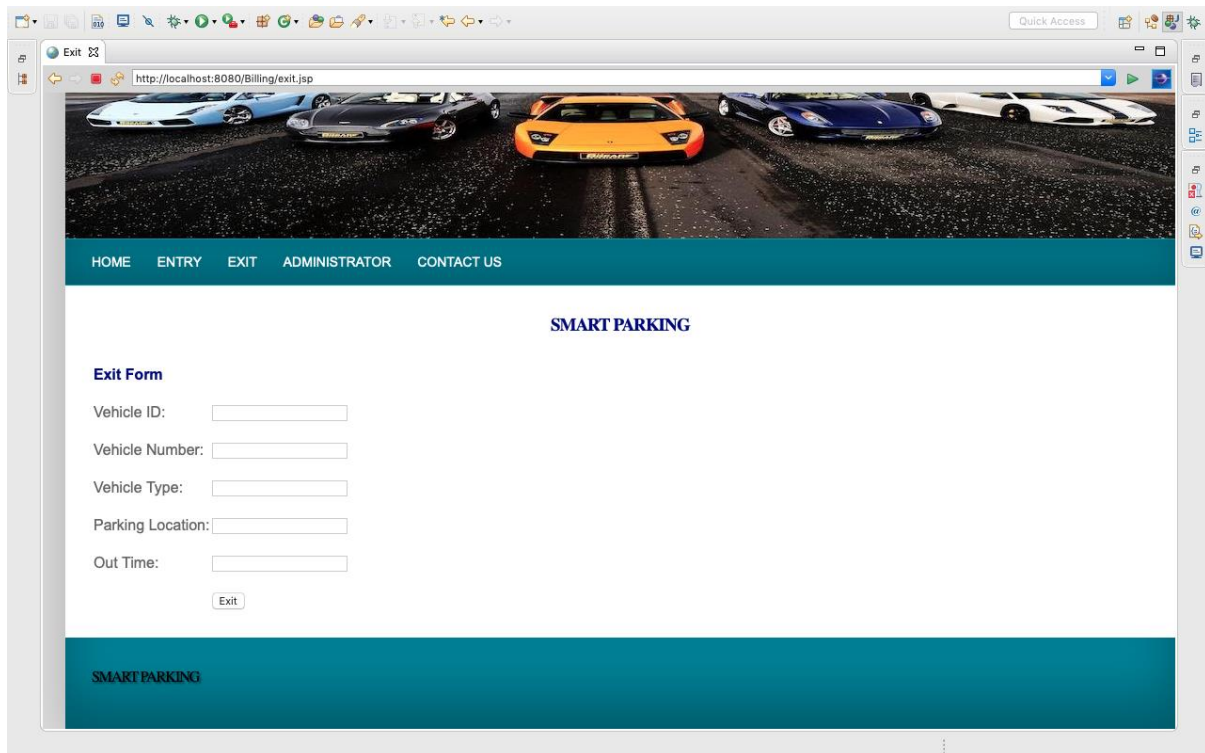
Academic Year 2018-2019, PIET, Jaipur

```

request=new XMLHttpRequest();
}
else if(window.ActiveXObject){
request=new ActiveXObject(&quot;Microsoft.XMLHTTP&quot;);
}
try
{
request.onreadystatechange=getInfo;
request.open(&quot;GET&quot;,url,true);
request.send();
}
catch(e){alert(&quot;Unable to connect to server&quot;);}
}
function getInfo(){
if(request.readyState==4){
var val=request.responseText;
document.getElementById(&#39;hi&#39;).innerHTML=val;
}
}
function sendGenInfo(name)
{
var v=name;
var url=&quot;getgeninfoname.jsp?val=&quot;+v;
if(window.XMLHttpRequest){
request=new XMLHttpRequest();
}
else if(window.ActiveXObject){
request=new ActiveXObject(&quot;Microsoft.XMLHTTP&quot;);
}
try
{
request.onreadystatechange=getGenInfo;
request.open(&quot;GET&quot;,url,true);

```


4. Sprint Backlog-4



```
function makePOSTRequest(url, parameters) {
    http_request=false;
    if (window.XMLHttpRequest) {
        http_request = new XMLHttpRequest();
        if (http_request.overrideMimeType) {
            http_request.overrideMimeType('text/html');
        }
    } else if (window.ActiveXObject) { // IE
        try {
            http_request = new ActiveXObject("Msxml2.XMLHTTP");
        } catch (e) {
            try {
                http_request = new
ActiveXObject("Microsoft.XMLHTTP");
            }
        }
    }
    if (!http_request) {
        alert('Cannot create XMLHTTP instance');
        return false;
    }

    http_request.onreadystatechange = alertContents;
    http_request.open('POST', url, true);
    http_request.setRequestHeader("Content-type", "application/x-www-form-urlencoded");
    http_request.setRequestHeader("Content-length", parameters.length);
    http_request.setRequestHeader("Connection", "close");
}
```

```

        http_request.send(parameters);

    }

</script>
</head>

<div id="outer">
<jsp:include page="header.jsp"></jsp:include>

<br>

<body width="100">

<div id="main">

<h3 style="color: navy;" align="center"><B>Smart Parking</B></h3>
<div id="box">

<form action="generalinfo.jsp" name="myform" id="hello"
method="post">
    <table>
        <tr><td style="color:navy;"><B> Entry
Form </B></td></tr>
        <tr><td><br></td></tr>
        <tr><td>Vehicle ID:</td><td><input
type="text" name="id"/></td></tr>
        <tr><td><br></td></tr>
        <tr><td>Vehicle Number:</td><td><input
type="text" name="vnumber"/></td></tr>
        <tr><td><br></td></tr>
        <tr><td>Vehicle Type:</td><td><input
type="text" name="vtype"/></td></tr>
        <tr><td><br></td></tr>
        <tr><td>Parking Location:</td><td><input
type="text" name="plocation"/></td></tr>
        <tr><td><br></td></tr>
        <tr><td>In Time:</td><td><input
type="text" name="intime"/></td></tr>
        <tr><td><br></td></tr>
        <tr><td></td><td><input type="submit"
value="Entry"></td></tr>

    </table>

<br>

```

CONCLUSION

The smart parking industry continues to evolve as an increasing number of cities struggle with traffic congestion and inadequate parking availability. While the deployment of sensor technologies continues to be core to the development of smart parking, a wide variety of other technology innovations are also enabling more adaptable systems—including cameras, wireless communications, data analytics, induction loops, smart parking meters, and advanced algorithms.

The future of the smart parking market is expected to be significantly influenced by the arrival of automated vehicles (AVs). Several cities around the world are already beginning to trial self-parking vehicles, specialized AV parking lots, and robotic parking valets.

The proposed system will provide advance information on availability of parking lots through internet and phone. Smart parking strategies necessitate the installation of a parking guidance and information system. The information on availability of parking space in each facility will be garnered based on the count of cars parked or from ticketing machines with the aid of sensors. The data will be sent to the central computer that will process and determine locations where parking spaces are available.

References

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- www.java.com
- www.javadekho.com
- www.w3schools.com