Team Members :

* Noor El-Hoda Mostafa
* Hagar Hussien
* Noura Hamza
* Noor El-Hoda Ahmed

Section : 8.

project number :80.

Project Name : Parking .

Project Sponsor : General Authority for Transport .

Project manger : Dr. Alaa .

Project Description

The app, is a sensor-based system that helps the customer find a place to park in an easy way so it reduces congestion.



Objectives for that project

1. Availability of places where cars can easily be parking.
2. Optimal Use of Areas
3. Reducing time and effort to park a car .
4. Easy application.
5. Protect customer vehicles from damage .

Scope for that project

1. This application runs in a lavish mall that makes it easier for clients to park safely.
2. When a user wants to find a spot for his car, they access the application and identify his car, and the senor sends out the available Spaces with the right space by putting a red flag in front of the occupied areas and a green one in front of the empty areas.
3. An application will only run in a number of mawl .
4. Application only runs out on iPhones and Androids.

Out of the Scope

1. This application can only be used in commercial malls.
2. Application only runs out on iPhones and Androids.

Deliverable

The application enables customers to easily park their cars in the mall and makes it easy to find their cars when leaving, all by installing a sensor that sends notifications to the car owner to know if the place is empty or occupied.

It has the ability to respond to voice commands if the person using it cannot read or write.

Miliestone

We need three weeks to define the requirements of the program, two weeks to assign responsibilities to employees, one week to set the tests, four weeks to build the software, also four weeks to design the program interface, two weeks to make tests on the program, and finally, we need five weeks to launch and market the application

# Work Breakdown Structure (WBS):

**Parking app**

Hardware

Software

Security

Sensor

Android App

Los App

flutter

PYTHON

C++

Java

* WBS Dictionary

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Work package | ID | Responsible | Start Date | End date |
| Define requirements | A | Hager | 27\12\2020 | 18\1\2021 |
| Distribute responsibilities | B | Noor EL\_Hoda Mostafa | 18\1\2021 | 2\2\2021 |
| Assign tests | C | Noor EL\_Hoda Ahmed | 18\1\2021 | 25\1\2021 |
| Building software | D | Noor EL\_Hoda Mostafa | 2\2\2021 | 1\1\2021 |
| Designing interface | E | Noor EL\_Hoda Ahmed | 25\1\2021 | 23\2\2021 |
| Testing | F | Nora Hamza | 1\1\2021 | 14\3\2021 |
| Launching and marketing | G | Hager | 14\3\2021 | 19\5\2021 |

* + **Responsibility matrix:**

|  |  |  |
| --- | --- | --- |
| 5 | D | 9 |
| 0 | Building software | |
| 5 | 4 | 9 |

|  |  |  |
| --- | --- | --- |
| 9 | F | 11 |
| 0 | Testing | |
| 9 | 2 | 11 |

|  |  |  |
| --- | --- | --- |
| 4 | E | 8 |
| 3 | Designing interface | |
| 7 | 4 | 11 |

|  |  |  |
| --- | --- | --- |
| 3 | C | 4 |
| 3 | Assign tests | |
| 6 | 1 | 7 |

|  |  |  |
| --- | --- | --- |
| 3 | B | 5 |
| 0 | Distribute responsibilities | |
| 3 | 2 | 5 |

|  |  |  |
| --- | --- | --- |
| 11 | G | 16 |
| 0 | Launching and marketing | |
| 11 | 5 | 16 |

|  |  |  |
| --- | --- | --- |
| 0 | A | 3 |
| 0 | Define requirements | |
| 0 | 3 | 3 |

Critical Path: (ABDFG).

* Gantt chart:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Task | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Define requirements |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Distribute responsibilities |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Assign tests |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Building software |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Designing interface |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Testing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Launching and marketing |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

* **Resource-constrained Schedule:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | Res | Dur | Es | Lf | Sl | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| A | 2 | 3 | 0 | 3 | 0 | 2 | 2 | 2 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| B | 2 | 2 | 3 | 5 | 0 |  |  |  | 2 | 2 |  |  |  |  |  |  |  |  |  |  |  |
| C | 2 | 1 | 3 | 7 | 3 |  |  |  | 2 | - | - | - |  |  |  |  |  |  |  |  |  |
| D | 3 | 4 | 5 | 9 | 0 |  |  |  |  |  | 3 | 3 | 3 | 3 |  |  |  |  |  |  |  |
| E | 3 | 4 | 4 | 11 | 3 |  |  |  |  | 3 | 3 | 3 | 3 |  |  |  |  |  |  |  |  |
| F | 4 | 2 | 9 | 11 | 0 |  |  |  |  |  |  |  |  |  | 4 | 4 |  |  |  |  |  |
| G | 3 | 5 | 11 | 16 | 0 |  |  |  |  |  |  |  |  |  |  |  | 3 | 3 | 3 | 3 | 3 |
| Total resource | | | | | | 2 | 2 | 2 | 4 | 5 | 6 | 6 | 6 | 3 | 4 | 4 | 3 | 3 | 3 | 3 | 3 |
| Resource available | | | | | | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 |

* + **Network:**

|  |  |  |  |
| --- | --- | --- | --- |
| Activity | Description | Processor | Duraction |
| A | Define requirements | None | 3 |
| B | Distribute responsibilities | A | 2 |
| C | Assign tests | A | 1 |
| D | Building software | B | 4 |
| E | Designing interface | C | 4 |
| F | Testing | D | 2 |
| G | Launching and marketing | E,F | 5 |

**Resource-constrained:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ID | RES | Dur | 0 | | 25 | 70 | | | 155 | | 180 | 250 | | | 280 | 295 | | 350 |
| A | 2 | 3 |  | |  |  | | |  | |  |  | | |  |  | |  |
| B | 1 | 2 |  | |  |  | | |  | |  |  | | |  |  | |  |
| C | 2 | 1 |  | |  |  | | |  | |  |  | | |  |  | |  |
| D | 3 | 4 |  | |  |  | | |  | |  |  | | |  |  | |  |
| E | 3 | 4 |  | |  |  | | |  | |  |  | | |  |  | |  |
| F | 2 | 2 |  | |  |  | | |  | |  |  | | |  |  | |  |
| G | 2 | 5 |  | |  |  | | |  | |  |  | | |  |  | |  |
| Resources Scheduled | | | 3 | 6 | | | 5 | 4 | | 5 | | | 3 | 3 | | | 2 |  |
| Resources Available | | | 6 | 6 | | | 6 | 6 | | 6 | | | 6 | 6 | | | 6 |  |

Resources

1. Team members.
2. Appstore (iPhone,Android).
3. Sensor.

Resource constrain

1. It should not take more than 4 months.
2. Project Cost Should not be More than 400000$.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Task | Budget | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| Define requirements | 38,000 | 10,500 | 10,000 | 17,500 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Distribute responsibilities | 66,000 |  |  |  | 53,000 | 13,000 |  |  |  |  |  |  |  |  |  |  |  |
| Assign tests | 54,000 |  |  |  | 50,000 | 2,000 | 1,400 | 600 |  |  |  |  |  |  |  |  |  |
| Building software | 50,000 |  |  |  |  |  | 34,000 | 12,500 | 500 | 3000 |  |  |  |  |  |  |  |
| Designing interface | 72,000 |  |  |  |  | 30,600 | 11,000 | 20,100 | 10.000 | 100 |  | 200 |  |  |  |  |  |
| Testing | 43,000 |  |  |  |  |  |  |  |  |  | 32,000 | 11,000 |  |  |  |  |  |
| Launching and marketing | 77,000 |  |  |  |  |  |  |  |  |  |  |  | 41,000 | 16,000 | 12,000 | 3,000 | 5,000 |
| Total | 400,000 | 10,500 | 10,000 | 17,500 | 103.000 | 45,600 | 46,400 | 33,200 | 10,500 | 3,100 | 32,000 | 11,200 | 41,000 | 16,000 | 12,000 | 3,000 | 5.000 |
| Cumulative |  | 10,500 | 20,500 | 38,000 | 141,000 | 186,000 | 233,000 | 266,200 | 276,700 | 279,800 | 311,000 | 323,000 | 364,000 | 380,000 | 392,000 | 395,000 | 400,000 |

Task allocation

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Task  task Name | Noor EL\_Hoda Ahmmed | Noora Hamza | Noor EL\_Hoda Moustafa | Hager |
| Define requirements |  | S |  | R |
| Distribute responsibilities |  |  | R | S |
| Assign tests | R | S |  |  |
| Building software | S |  | R | S |
| Designing interface | R | S | S |  |
| Testing | S | R | S | S |
| Launching and marketing |  | S | S | R |

R responsibilities

S Support

Budget :

400,000$ (includes servers, project licenses, developers, designers,equipments) .

Work Package Description software . page 1 of 1 .

Work Package ID 11.3.2.4.1 and 11.3.2.4.2 Project PC Prototype .

Deliverable Circuit board . Date 27\12\2020 .

Rosponsiblo organization unit Software . Estimator LGG .

Work Package Duration 16 weeks . Total labor cost 400,000$ .

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Work package | Resource | Labor rate | Work perids\_weeks | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | Total |
| Code 1.1.3.2.4.1 | Program'rs | 50,000$ week | 10,500 | 2,000$ | 17,000$ | 100,000$ | 45,000$ | 46,000$ | 30,000$ | 10,000 | 3,000 | 32,000 | 10,000 | 30,000 | 12,000 | 10,500 | 1,500 | 5,000 | 364,500$ |
| Code 1.1.3.2.4.2 | System\ Program'rs | 43,000$ week |  | 8,000$ |  | 3,000$ | 600 | 400 | 3,200 | 500 | 100 |  | 1,200 | 11,000 | 4,000 | 2,000 | 1,500 |  | 35,500$ |
| Ttotal | | | 10,500$ | 10,000$ | 17,000$ | 103.000$ | 45,600$ | 46,400$ | 33,200$ | 10,500$ | 3,100 | 32,000 | 11,200 | 41,000 | 16,000 | 12,000 | 3,000 | 5.000 | 400,000 |

Time\_Phased Labor Budget

Risk

1. Possible senor allergy to any object other than a car so we can make the sensor so that it only induces metals Weight of at least 10 kg.
2. There are some people who can't read and write, so we have to make the application respond to the voice commands of the corner service.
3. There are some people who are not subscribed to this application. The solution is to put a device outside the garage gate that determines the empty places and their area for people.