

## Project Charter

- **Official project name:** Parking System.
- **Project Sponsor:** Stakeholders of Sheikh Zayed City.
- **Project manager:** Mohamed Mostafa
- **Purpose of the project:** To solve a problem of finding empty parking space in the city, to save time of parking and to minimize the arguments...
- **Business Case:**
  - The increasing influx of automobiles may be accommodated, through both the construction of roads and the creation of enough parking spaces. The challenge of parking is particularly important, as most people prefer private car ownership, something that is deeply ingrained in the daily routines of many of us. For this reason, the search for a parking spot in busy towns and cities is a daunting endeavor, leading to time wastage and unwarranted consumption of fuel, and, importantly, contributing to climate change. The issue of parking is significant to the point that it has been raised in discussions of climate change mitigation as well as in political arenas. In the new era, where technology has been accepted as one of the most critical tools for solving some of the challenges faced in the 21st century, especially in urban areas, the issue of parking has not been left behind. With the adoption of the Smart City model in most urban areas, smart digital solutions have emerged. Among them is the smart parking system, may be instrumental in bringing order and sanity to parking lots. According to them, the smart parking system could be customized to combine both technology and human innovations in order to optimize the utilization of scarce resources such as fuel, time, and space.
  - Sheikh Zayed City management has invested in deploying sensors system for motorists to guide them to e-parking spots. A total of 600 wireless parking sensors were deployed on the streets. The embedded aspects were placed underneath the asphalt, and the sensors were then used to identify the available parking spaces and notify the motorists. The program was intended to cut down on emissions and congestion by providing motorists real time direction on the availability and location of open parking spaces. Access to sensor data was conducted through the proprietary application

programming interface (API) of varying technology vendors operating in the smart parking space (Barcelona 2014).

- **Key deliverables:**

- Parking system is a mobile application that will work on both Android and IOS.

- **Project milestones:**

- 1. Planning:(January 2022: [1/1: 30/1])**

- Meet with sponsors and clients to discuss Initial form issues and determine basic categories and subjects with project team and buying materials.

- 2. Hardware and Software design review:(from January to May 2022: [31/1: 24/5])**

- Detailed designs fully implement the system architecture, are approved and are suitable for input into the development of code.

- 3. System test review:( from May to June 2022: [25/5: 7/6])**

- The software product has passed system testing and is suitable for input into acceptance testing.

- 4. Product operational: (June 2022: [7/6: 22/6] )**

- The software is in use in its target operational environment.

- **Project resources:**

- Staff: 3 android developers, 2 IOS developers, 1 back end developer, civil engineer and electric engineer.
- Hardware: 8 laptops and 2 servers.
- Software: Software licenses (Editors: Phpstorm).

- **Budget:**

- Budget allocated for this project is 1000000\$.

- **Constraints:**

- This project must be delivered within the specified budget.
- This project must be delivered on 7/8/2022.
- Any laptops or computers needed must be bought from HP Company.

- **High-level risks:**

- Inaccurate estimates.
- Scope creep: uncontrolled changes and continuous growth of the scope or scope is ill defined.
- Project team misunderstands requirements.
- Manpower shortage.
- Customer will not accept the software as delivered even though it meets all specifications.
- Selected technology is poor matching to the problem or customer.
- Project key success criteria not clearly defined to verify the successful completion of each project phase.
- Projects within the program often need the same resources at the same time.

- Do not have the approval to make it in the city to avoid destroying the public neighborhoods.

## **Project Scope**

### **1. *Product Scope Description:***

- Dynamic pricing: Dynamic pricing based on basic principal of supply and demand .The AI system combined with IP cameras in the parking lot automatically provides real-time parking pricing changes depending on factors such as peak and non-peak times.
- Benefits of dynamic pricing for parking:
  - Flexible demand management.
  - Maximization of revenue.
  - Reduce traffic and air-pollution.
  - Better parking experience for users.
- Pre-Booking: Through a mobile app you can simply choose the time and location to reserve a parking space at your destination this can greatly:
  - Reduce time spent looking for parking.
  - Contribute to CO2 reduction.Mobile notification will alert you when the reserved time is running low and you will have option to extend the time right on your phone.
- Cashless Payment: It is a complete ticketless parking solution implementing the state of the art license plate recognition technology to provide the most efficient and customer friendly parking experiences .No physical tickets are needed anymore and all entry and exit data is managed by LPR machine.
- In addition, it is not unusual we forget where we parked in such cases, you can easily find the kiosk, or simply open the smart phone apps enter your license plate number, choose your car, then it shows where your car is parked and how to get there.
- The system will make parking stress-free, save your time and fuel and help save the environment.

### **2. *Product Acceptance Criteria:***

- System must achieve these goals:
  - Parking system will work on both Android and IOS.
  - System includes Dynamic pricing for parking.

- System includes Pre-Booking.
- System includes Cashless Payment.
- System should be environmentally friendly.
- System should be easy to use and provider by its technical support.

### **3. *Project Deliverables:***

- Remain tools:
  - Cameras
  - Sensors
  - Laptops
  - Cables
  - Light system
- Architectural model of parking system
- The project plan and ongoing reports
- Software system

### **4. *Project Exclusions:***

- The goals which project will achieve(in the project scope):
  - Parking system will work on both Android and IOS.
  - System includes Dynamic pricing for parking.
  - System includes Pre-Booking.
  - System includes Cashless Payment.
  - Organization will provide technical support to its system for 500\$ per month.
- The things which project will not achieve(out of the project scope):
  - Parking system will not work on Apple's Mac computers.
  - Parking system will be limited by its area only not the surrounding places.
  - Technical support will stop if there is any delay in payment of fees.
  - The customer has no right to sell or dispose of the system, he has only the right to use it and if this happen, the organization will sue the customer.

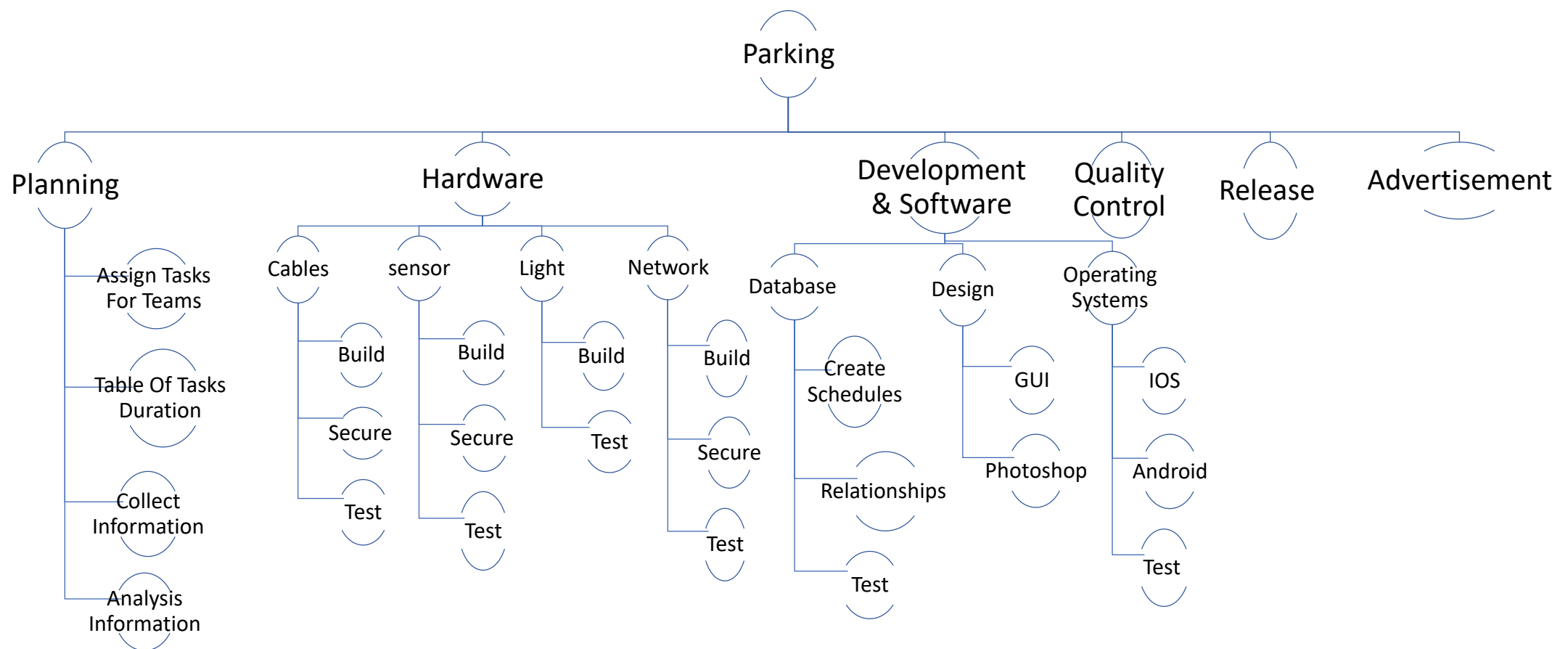
### **5. *Project Constraints:***

- The budget should not exceed 1000000\$.
- Deadline of the whole project is 7/8/2022.

- Resources should not exceed 10 resources.
- Any laptops or computers needed must be bought from HP Company.

## 6. **Project Assumptions:**

- *Every task ends in its deadline.*
- *System will be very fast and easy to use by different categories.*
- *Hardware and software compatibility.*
- *Resource availability.*
- *Longevity of all solutions of risks.*



### 1. Planning

- 1.1 - Assign Tasks For Teams
- 1.2 - Table Of Tasks Duration
- 1.3 - Collect Information
- 1.4 - Analysis Information

## 2. Hardware

### ✓ Cables

- 2.1.1 - Build
- 2.1.2 - Secure
- 2.1.3 - Test

### ✓ Sensor

- 2.2.1 - Build
- 2.2.2 - Secure
- 2.2.3 - Test

### ✓ Light

- 2.3.1 - Build
- 2.3.2 - Test

### ✓ Network

- 2.4.1 - Build
- 2.4.2 - Secure
- 2.4.3 – Test

## 3. Development & Software

### ✓ Database

- 3.1.1 - Create Schedules
- 3.1.2 - Relationships
- 3.1.3 - Test

### ✓ Design

- 3.2.1 - GUI
- 3.2.2 - Photoshop

### ✓ Operating Systems

- 3.3.1 - IOS
- 3.3.2 - Android
- 3.3.3 - Test

4. Quality Control

5. Release

6. Advertisement

Code of accounts number	Description	Persons	No. Resources	Cost	Milestone
1	Planning		5R	29,000\$	1/1:30/1
1.1	Assign tasks for Teams	Manager	2R	21,000\$	1/1:14/1
1.2	Table Of Tasks Duration	Team Members			
1.3	Collect Information	Mary Magy H.	1R	5,000\$	15/1:22/1
1.4	Analysis Information	Magy S. Maria Marian	2R	3,000\$	23/1:30/1
2	Hardware		9R	225,000\$	31/1 :13/3
2.1	Cables	Karin Mary	2R	50,000\$	31/1:6/2
2.2	Sensors	Maria Marian	2R	65,000\$	7/2:13/2
2.3	Lights	Mary Karin	2R	30,000\$	13/2:20/2
2.4	Network	Magy S. Maria	3R	80,000\$	21/2:13/3
3	Software		9R	250,000\$	31/1:24/5
3.1	Database	Clara Magy H.	3R	60,000\$	31/1:13/2
3.2	Design	Karin Mary	3R	70,000\$	31/1: 13/3
3.3	Operating System	Marian Mary	3R	120,000\$	14/3: 24/5
4	Quality Control	Magy S. Maria Marian	3R	80,000\$	25/5: 7/6
5	Release	Magy H. Clara	3R	150,000\$	8/6 :14/6
6	Advertisements	Karin Mary	2R	150,000\$	15/6:22/6



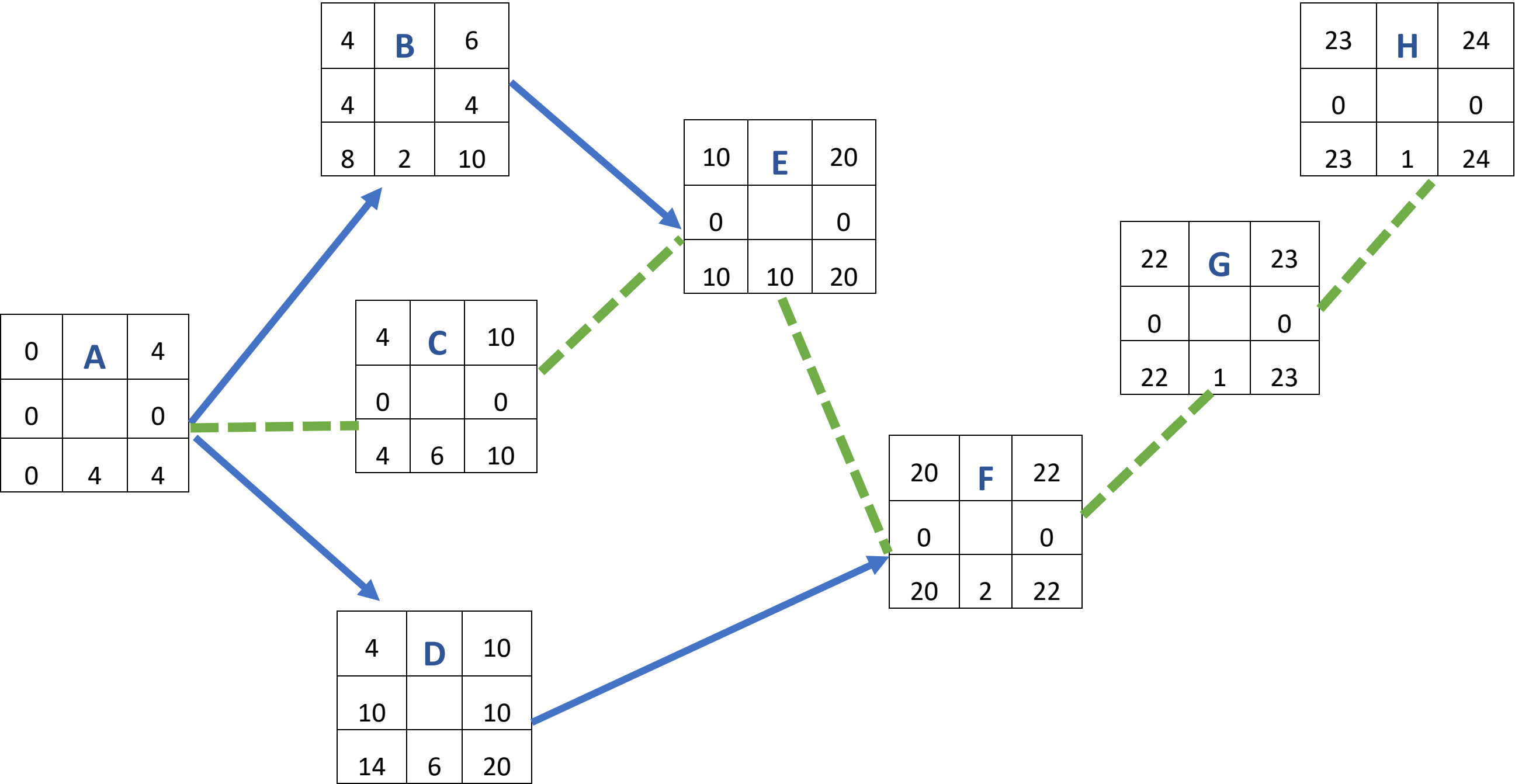
# Responsibility Matrix

R=Responsible

S=Support

	Maria Ayman	Marian Ashraf	Clara Bassem	Magy Samuel	Karin Essam	Mery Gerges	Magy Hamdy
Assign Tasks for Teams & Table of Tasks Duration	R	S	S	S	S	S	S
Collect Information			S	S	S	S	R
Analysis Information	S			R	S		S
Cables	S		S		S	R	
Sensors		R		S	S	S	S
Lights		S	S	S		R	S
Network	R		S	S		S	S
Database	S	S	R			S	
Design	S	S			R		S
Operating System	S	R	S	S	S	S	
Quality Control	S	S	S	R	S		
Release	S	S	R	S		S	
Advertisements		S			R	S	S

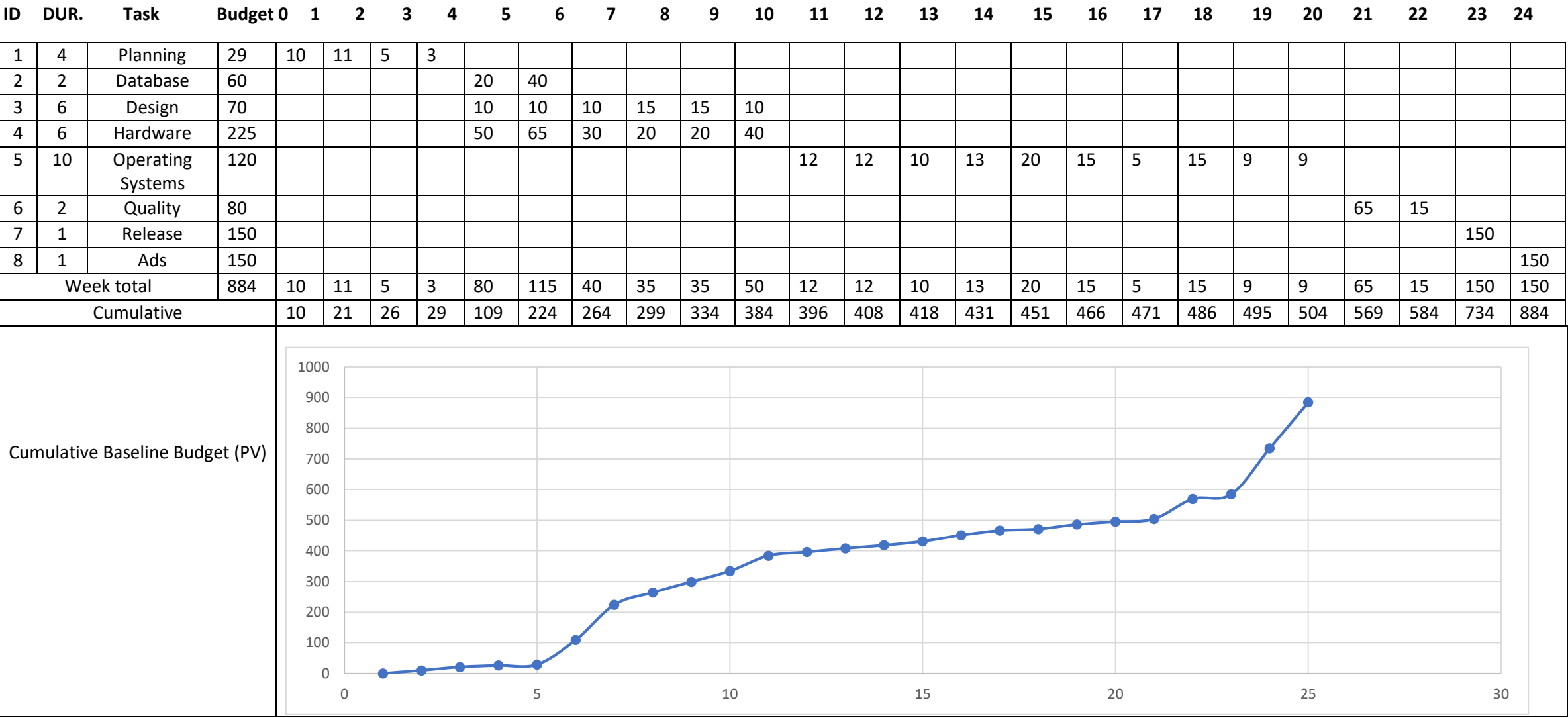
Activity	Description	Preceding Activity	Time
A	Planning	None	4 Weeks
B	Database	A	2 Weeks
C	Design	A	6 Weeks
D	Hardware	A	6 Weeks
E	Operating System	B&C	10 Weeks
F	Quality control	E&D	2 Weeks
G	Release	F	1 Week
H	Ads	G	1 Week



The critical path is A->C->E->F->G->H

[illegible]





# Risk Management

- High-level risks:

- Inaccurate estimates.
- Scope creep: uncontrolled changes and continuous growth of the scope or scope is ill defined.
- Project team misunderstands requirements.
- Manpower shortage.
- Customer will not accept the software as delivered even though it meets all specifications.
- Selected technology is poor matching to the problem or customer.
- Project key success criteria not clearly defined to verify the successful completion of each project phase.
- Projects within the program often need the same resources at the same time.
- Do not have the approval to make it in the city to avoid destroying the public neighborhoods.

- Possible solutions for risks:

- Project manager should check the project plan and check all numbers and ratios of all resources, budget and deadline tasks.
- We should make the deadline more flexible, this is done in consideration of any sudden changes in human or equipment resources.
- Making a meeting with the project team frequently to discuss the main deliverables, customer needs and understand them well to avoid any misunderstanding.
- Make an advertisement for employees per project.
- Make sure that all deliverables, constraints, criteria and assumptions are defined at the planning stage.
- Making different plans to be suitable for any changes.
- The advantages of the project are more than disadvantages.

- **To monitor your project you should:**

- Every team manager should make reports for each task has been done already by his team.
- To send all reports frequently to the customer to make sure that the work meet customer's needs.
- Make check list for all tasks and the project manager make sure of it.