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Subject:MIS-6308.0W2

SATELLITE BASED INTERNET TECHNOLOGY

Addressing the concerns of many despite the cares of few

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EXECUTIVE SUMMARY

The one thing we are connected to all the time is internet. The most widely used internet system now is a fiber optic/wireless system but these systems have a few drawbacks to overcome these drawbacks we are being inspired by starlink technology are proposing a satellite-based internet service.

Unlike traditional internet service, this system promises fast speeds and reliable service even in the most remote places on Earth. satellite network consists of a "constellation" of over 30,000 small, highly agile satellites surrounding the globe. Compare this to the 2,000 total satellites currently orbiting the Earth, and you get an idea of just how large this network will be.

The objective of the proposal is to establish a low-latency network in space, which will make edge computing more feasible on earth.

This service is ideally suited for areas where connectivity has been unreliable or completely unavailable.

Latency is where this satellite-based service especially shines compared to other services. High latency is directly caused by the physical distance a signal has to cross, and signal doesn't have to travel nearly as far as a signal from typical satellite services.

Starlink has latency that is considered within the optimal range, and a download speed capable of reaching 100 Mbps. But how does it compare to providers that use a fixed infrastructure like Fiber. It is intended to provide the most cutting-edge low-latency network connection.

This proposal aims to make high-speed Internet connections available everywhere, especially in remote locations.

PROBLEM STATEMENT

PROBLEMS:

1. High Bandwidth Usage

    1. Large Downloads

    2. Latency

    3. Packet Loss

    4. Video Streaming

    5. File Sharing

2. High CPU usage

    1. Traffic overloads the network, causing it to become unusable.

    2. When processes take longer to complete or when a high network packets are exchanged, CPU use might rise significantly.

1. Physical Connectivity Issues

    1. Hardware Problems

    2. LAN Infrastructure

    3. difficult and complex monitoring

2. Manufacturing devices and Equipment's

    1. Bad configuration

    2. defaulted network connections

    3. Device misconfiguration

2. DNS Issues

    1. Problem to connect with IP address

2. weak Internet access

3. High TTL Values

2. Interference

1. Low signal strength and network connection
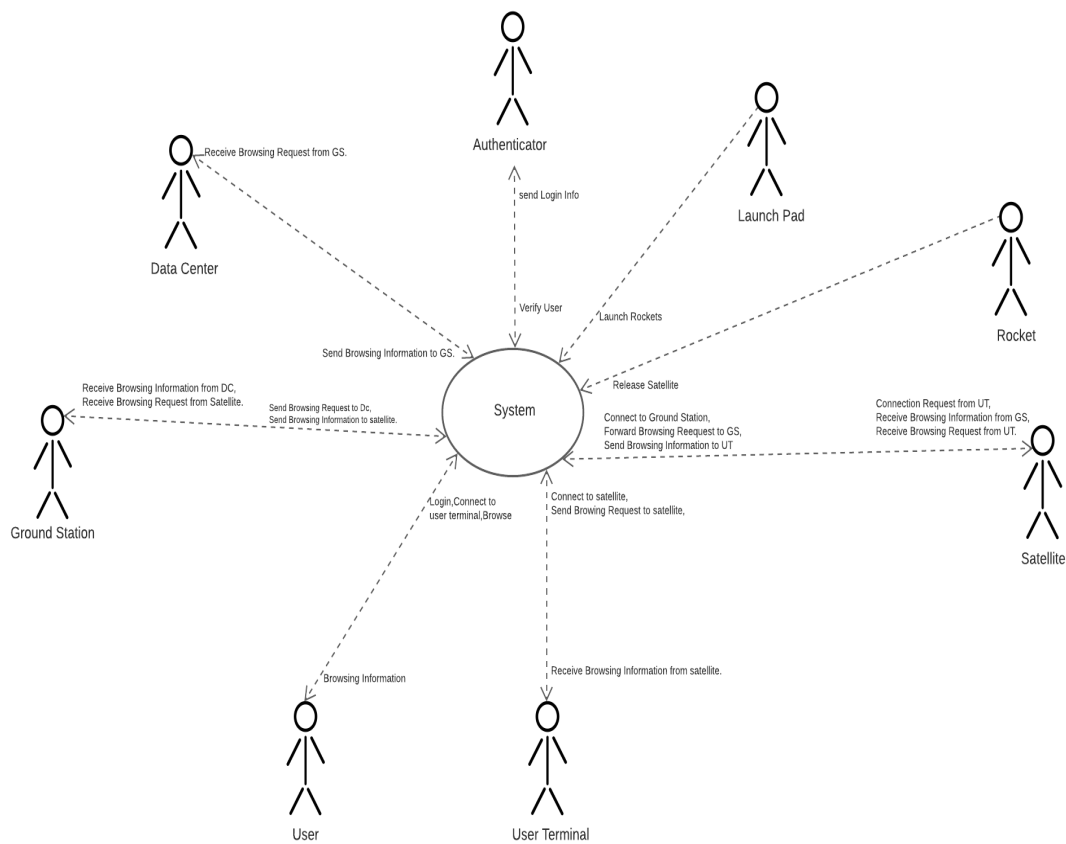
2. Inability to pair with devices

OBJECTIVES:
1. To improve Internet experience of users with more stability and efficiency.

2. To provide high internet speed in rural area

3. To achieve the Internet speed of 150 Mbps in countries where services are being offered.
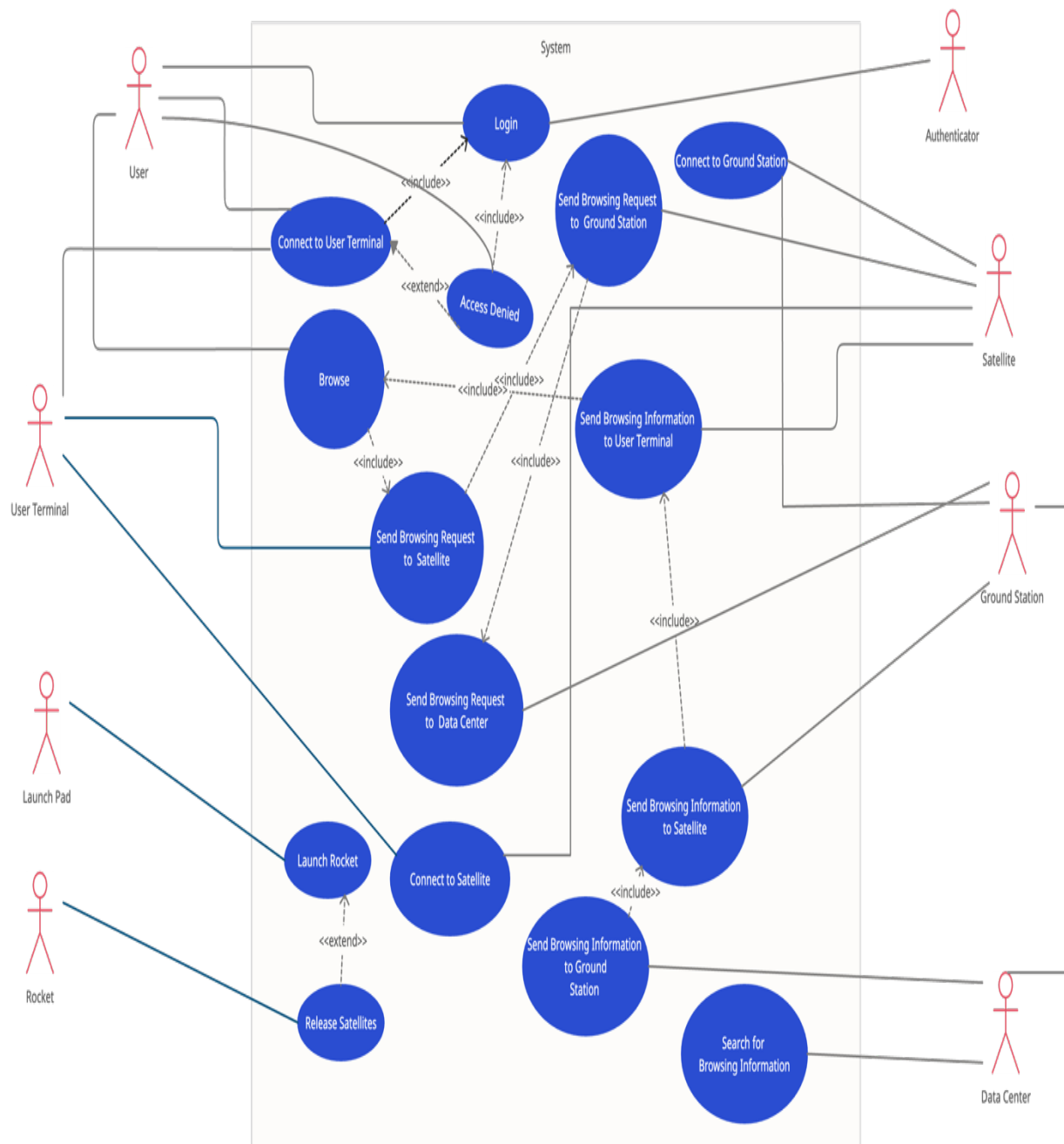
SCOPE:

1. A new spaceborne Internet communication system will be implemented with the inspiration of Star link satellite constellation development project, which aims to create a low-cost, high-performance satellite bus and the necessary client ground transceivers to increase the efficiency and stability of users Internet experiences and to offer fast internet in rural areas where services are being offered, achieving an Internet speed of 150 Mbps .

2. Faster, more intelligent, and more robust wireless networking will be made possible by the fifth generation of cellular network technology, which will spur advancements in a wide range of other developments.

3. Data Fabric enables powerful and adaptable data integration between platforms and people to make data accessible wherever it is needed, regardless of where it lives.

4. The satellite broadband system \ has the potential to offer internet rates of up to 150 Mbps to just about every location on the earth. The only thing the user needs is an unobstructed view of the sky.

CONTEXT DIAGRAM

Authenticator

send Login Info

Launch Pad

Rocket

Receive Browsing Request from GS.

Data Center

Verify User

Launch Rockets

Release Satellite

Send Browsing Information to GS.

System

Connect to Ground Station,
Forward Browsing Reequest to GS,
Send Browsing Information to UT

Connection Request from UT,
Receive Browsing Information from GS,
Receive Browsing Request from UT.

Receive Browsing Information from DC,
Receive Browsing Request from Satellite.

Send Browsing Request to Dc,
Send Browsing Information to satellite.

Ground Station

Satellite

Login,Connect to
user terminal,Browse

Connect to satellite,
Send Browing Request to satellite,

Browsing Information

Receive Browsing Information from satellite.

User

User Terminal

USE CASE DIAGRAM

CHOREOGRAPHY DIAGRAM

Authenticator
- Receive Login Credentials
- Verify Credentials
- Yes / No
- Send Connection request to User Terminal
- Terminate

User
- Login
- Browse
- Receive browsing Information

Login Credentials
Connection Request
Browsing Request
Browsing Response

User Terminal
- Receive Connection request from user
- Send Connection request to satellite
- Receive Browsing Request from User
- Send Browsing Request to Satellite
- Receive Browsing Information From Satellite
- Send Browsing Information to User

Connection Request
Browsing Request
Browsing Response

Satellite
- Receive Connection request from user Terminal
- Send Connection request to Ground Station
- Receive Browsing Request from User Terminal
- Send Browsing Request to Ground Station
- Receive Browsing Information From Ground Station
- Send Browsing Information to User Terminal

Connection Request
Browsing Request
Browsing Response

Ground Station
- Receive Connection request from Satellite
- Receive Browsing Request from Satellite
- Send Browsing Request to Data Center
- Receive Browsing Information From Data Center
- Send Browsing Information to Satellite

Browsing Request
Browsing Response

Data Center
- Receive Browsing Request from Ground Station
- Search for Browsing Information
- Send Browsing Information to Ground Station

USE CASE DESCRIPTIONS

1. Use case name: Login

Primary actor: User, Authenticator

Stakeholders: User, Authenticator

Description: User logins to make a connection to the user terminal and the authenticator verifies the login credentials.

Includes :

Excludes

Normal flow of the event:

- User enter his login credentials.

- Authenticator will verify the login credentials.

Exceptional Flow

- If the credentials do not match throw a error message saying invalid credentials.

2. Use case name: Connect User Terminal

Primary actor: User

Stakeholders: User

Description: Once the login credential are verified the user gets connected to the user terminal. User Terminal is nothing but a dish of antenna that transmits signals to and from user to the whole network.

Includes : Login

Excludes: Access Denied

Normal flow of the event:

- Login details are verified by the authenticator

- If details match the user is connected to the user terminal

Exceptional Flow

- If the details do not match a error message is shown saying access is denied.

3. **Use case name: Connect to Satellite**

Primary actor: User Terminal,Satellite

Stakeholders: User Terminal,Satellite

Description: A connection request is sent to the nearest satellite which is in the range of the terminal. Once the

satellite receives the connection request it can accepts the request or deny it.

If the request is accepted a connection is created between the user terminal and satellite.If the connection is denied

than the user terminal finds the next nearest satellite and continues the process.

Includes :

Excludes:

Normal flow of the event:

- User Terminal sends a connection request to Satellite

- The Satellite can either accepts the connection or deny it.

- If the connection request is accepted by the satellite a connection is established between satellite and user

  terminal.

Exceptional Flow:

- If the connection is denied by the satellite

- The user terminal send the connection request to the next nearest satellite and repeats the same flow of steps

  as specified above.

4. **Use case name: Connect to Ground Terminal**

Primary actor: Satellite, Ground Terminal

Stakeholders: Satellite, Ground Terminal

Description: A connection request is sent to the Ground Station by the satellite. Once the connection is established between the satellite and ground station we can say that the user is connected and can perform his browsing operations. The user and ground station are connected through the user terminal and satellite. This connection completes the network.

Includes :

Excludes:

Normal flow of the event:

- Satellite connects to the ground station.

- Once this connection is established the network is complete

- Now the user can perform his browsing activities.

Exceptional Flow:

5. Use case name: Browse

Primary actor: User

Stakeholders: User

Description: User can perform his browsing activities.

Relationship:

Includes : Send browsing request to satellite

Excludes

Normal flow of the event:

- User performs browsing activities on this device.

- This device is connected to a user terminal.

- The browsing request is then sent to the satellite by the user terminal

- The satellite forwards this request to the ground station which in turn sends it to the data center.

- In the data center this request is processed and the information is sent to the groubd station which further forwards the search result to the satellite.

- From the satellite this information goes to the user via the user terminal

- Now the user is finally able to see the browsing information on his device what he requested for.

Exceptional Flow

5. Use case name: Send Browsing Request To Satellite

Primary actor: User Terminal

Stakeholders: user Terminal

Description: The browsing request which is received from the user is forwarded to the satellite.

Relationship:

Includes : Send browsing request to ground station

Excludes

Normal flow of the event:

- The user terminal forwards the browsing requests to the satellite it is connected to once it receives the request from the user.

Exceptional Flow :

6. Use case name: Send Browsing Request To Ground Station

Primary actor: Satellite

Stakeholders: Satellite

Description: The browsing request which is received from the user terminal is forwarded to the ground station which is connected to the satellite.

Relationship:

Includes : Send browsing request to Data Center

Excludes

Normal flow of the event:

- The satellite forwards the browsing requests to the ground station it is connected to as soon as it receives the request from the user terminal.

Exceptional Flow :

7. Use case name: Send Browsing Request To Data Center

Primary actor: Ground Station

Stakeholders: Ground station

Description: The browsing request which is received from the satellite is forwarded to the data center where this request will be processed.

Relationship:

Includes :

Excludes

Normal flow of the event:

- The ground station forwards the browsing requests to the data center.
- The data center further processes the request.

Exceptional Flow :

8. Use case name: Search for Browsing Information

Primary actor: Data Center

Stakeholders: Data Center

Description: The browsing request which is received is processed.

Relationship:

Includes :

Excludes

Normal flow of the event:

- The browsing request is dissected

- And the appropriate data store is searched for the following request.

- The information is then retrieved from data store present in the data center.

Exceptional Flow

- If the request is failed to process then send a error message.

9. Use case name: Send Browsing Information To Ground Station.

Primary actor: Data Center

Stakeholders: Data Center

Description: The result which is generated after processing the browsing request is then sent to ground station so that it can be passed forward to the user .

Relationship:

Includes : Send browsing information to Satellite.

Excludes :

Normal flow of the event:

- The result generated from the browsing request is forwarded to the ground station as browsing information.

10. Use case name: Send Browsing Information To Satellite

Primary actor: Ground station

Stakeholders: Ground Station

Description: The browsing information received from the data center is forwarded to the connected satellite by the ground station.

Relationship:

Includes : Send browsing information to user terminal.

Excludes

Normal flow of the event:

- Forward the browsing information received by the data center to the satellite.

Exceptional Flow

- If the connection is lost to the satellite due to time up or latency.

- A connection to the same satellite is re-established.

- And the same flow of events is continued.

11. Use case name: Send Browsing Information To User Terminal.

Primary actor: Satellite

Stakeholders: Satellite

Description: The information received from the ground station is then forwarded to the user terminal.

Includes : Browse

Excludes

Normal flow of the event:

- The information received from ground station is forwarded to the the user terminal.

- This information is further displayed on the users via the user terminal the device is connected to.

Exceptional Flow:

DATA DICTONARY

Name=First Name + Last Name

First Name=Data Element

Last name=Data Element

Address=Data Element

Email=Data Element

Plan Type=Data Element

Login Info=user ID + User Password

User ID= Data Element

User Password =Data Element

Launch Pad=Launch Pad Id + Launch pad location

Launch Pad ID=Data Element

Launch Pad Location= Data Element

Rocket Details=Rocket ID + Rocket Type + Capacity +(launch Date) +(Launch Location)

Rocket ID=Data Element

Rocket Type=Data Element

Capacity=Data Element

launch Date=Data Element

Launch Location=Data Element

Satellite Details= Satellite ID + Current Satellite Location+ Satellite Range+ Satellite Capacity

Satellite ID=Data Element

Current Satellite Location=Data Element

Satellite Range=Data Element

Satellite Capacity=Data Element

Terminal Details=Terminal ID + Display Name

Terminal ID=Data Element

Terminal Range=Data Element

Display Name=Data Element

Cost=Data Element

Ground Station Details= Station ID + Name + Ground Station Location

Station ID=Data Element

Name=Data Element

Ground Station Location =Data Element

Server Capacity=Data Element

Data Center Details=Data Center ID + Ground Station ID + Data Capacity
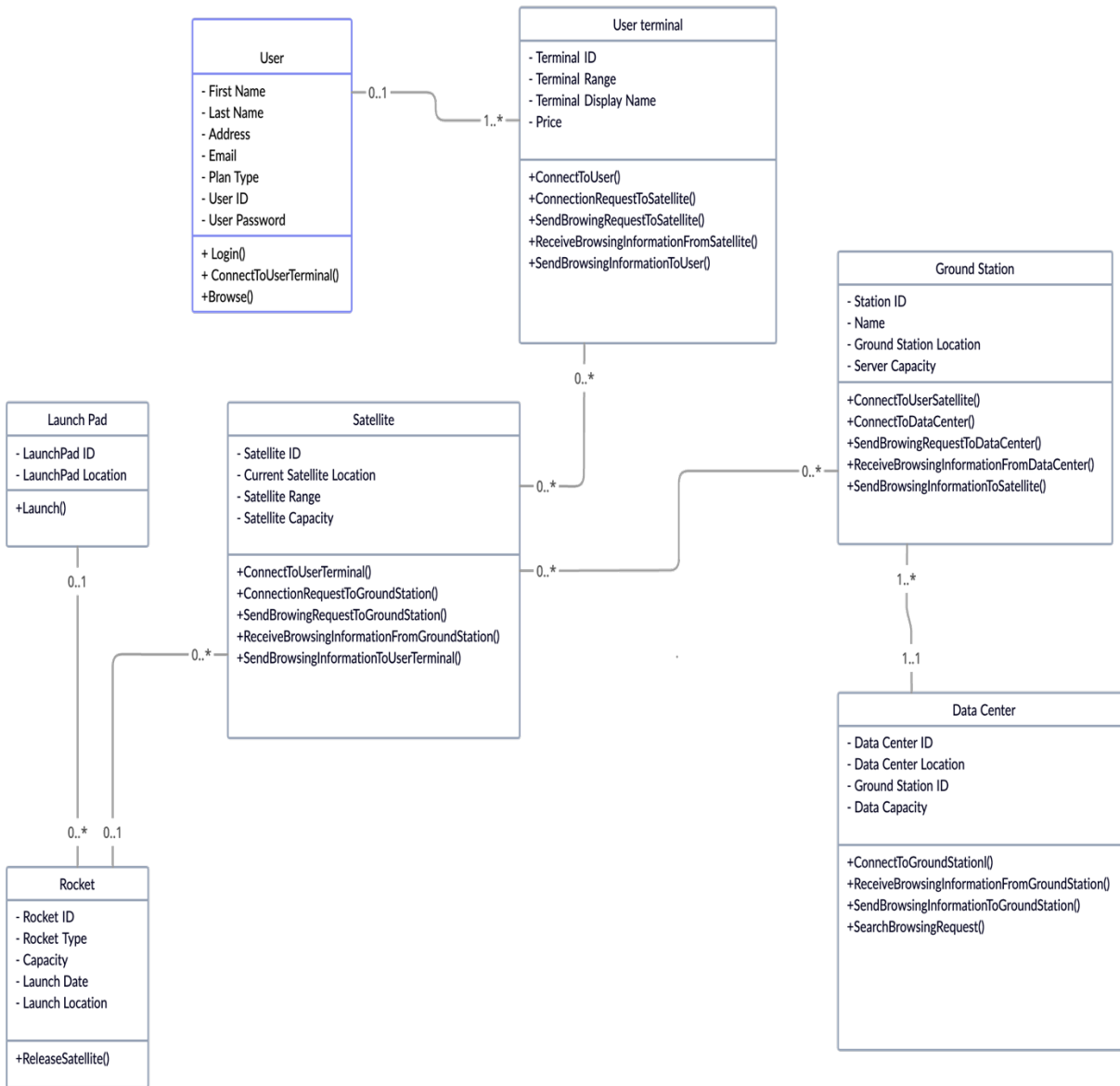
Data Center ID=Data Element
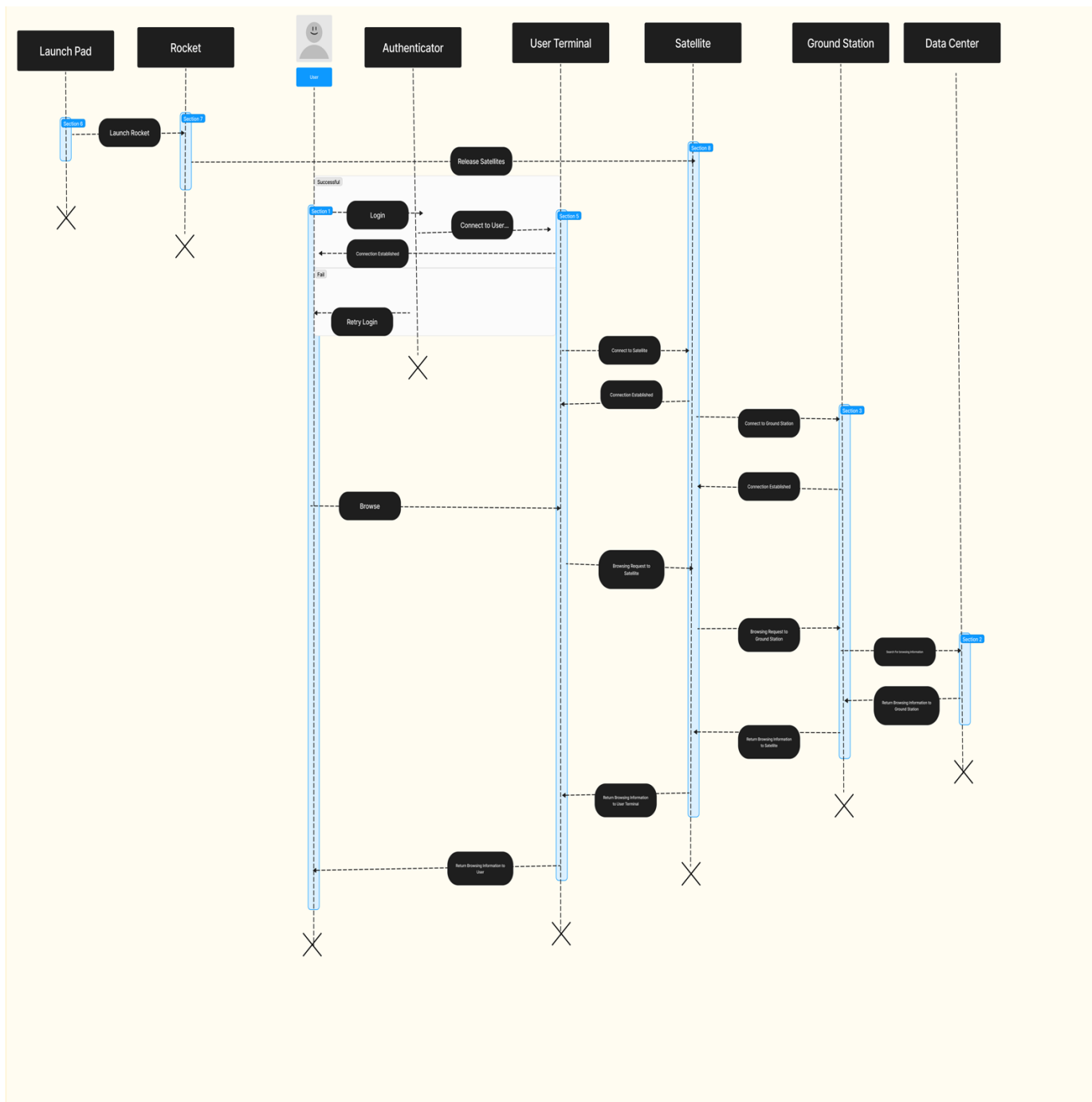
Data Center Location=Data Element

Ground Station ID=Data Element
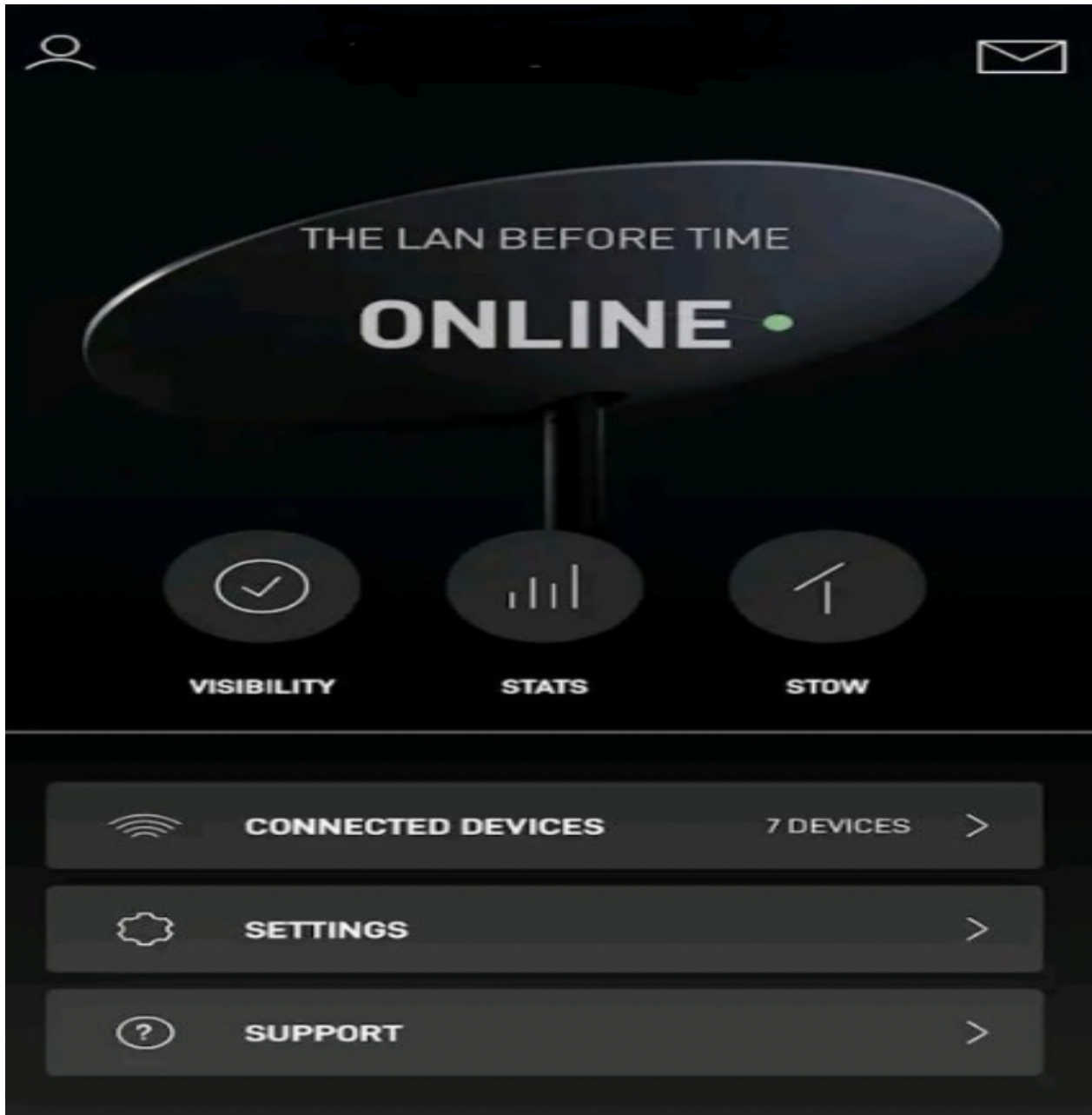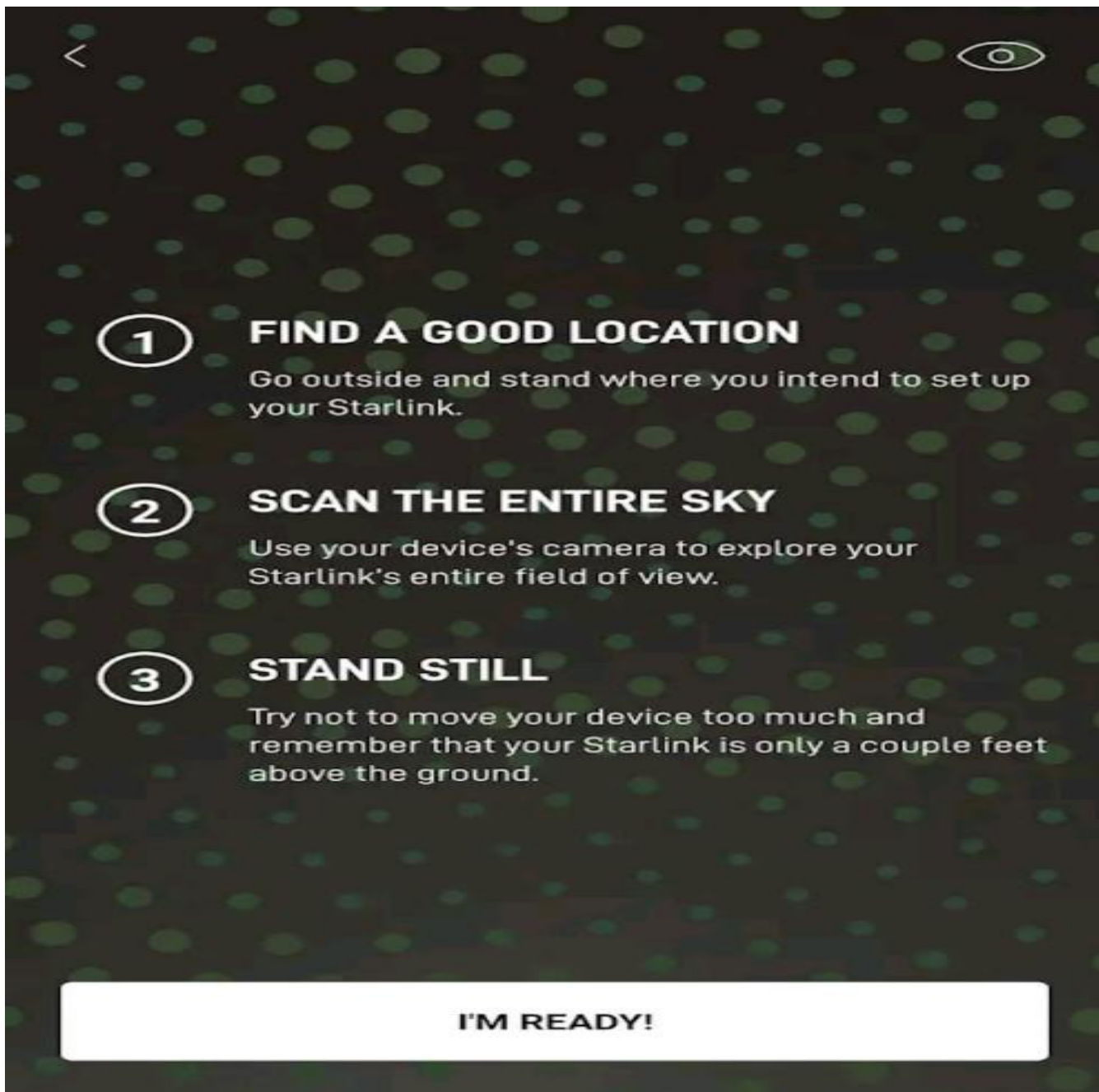
Data Capacity=Data Element

Class Diagram

User

- First Name
- Last Name
- Address
- Email
- Plan Type
- User ID
- User Password

+ Login()
+ ConnectToUserTerminal()
+Browse()

0..1 —— 1..*

User terminal

- Terminal ID
- Terminal Range
- Terminal Display Name
- Price

+ConnectToUser()
+ConnectionRequestToSatellite()
+SendBrowingRequestToSatellite()
+ReceiveBrowsingInformationFromSatellite()
+SendBrowsingInformationToUser()

0..*

Ground Station

- Station ID
- Name
- Ground Station Location
- Server Capacity

+ConnectToUserSatellite()
+ConnectToDataCenter()
+SendBrowingRequestToDataCenter()
+ReceiveBrowsingInformationFromDataCenter()
+SendBrowsingInformationToSatellite()

Launch Pad

- LaunchPad ID
- LaunchPad Location

+Launch()

0..1

Satellite

- Satellite ID
- Current Satellite Location
- Satellite Range
- Satellite Capacity

+ConnectToUserTerminal()
+ConnectionRequestToGroundStation()
+SendBrowingRequestToGroundStation()
+ReceiveBrowsingInformationFromGroundStation()
+SendBrowsingInformationToUserTerminal()

0..*   0..*   0..*

0..*   1..*

1..1

Data Center

- Data Center ID
- Data Center Location
- Ground Station ID
- Data Capacity

+ConnectToGroundStationl()
+ReceiveBrowsingInformationFromGroundStation()
+SendBrowsingInformationToGroundStation()
+SearchBrowsingRequest()

0..*   0..1

Rocket

- Rocket ID
- Rocket Type
- Capacity
- Launch Date
- Launch Location

+ReleaseSatellite()

SEQUENCE DIAGRAM

INTERFACE

1 **FIND A GOOD LOCATION**

Go outside and stand where you intend to set up your Starlink.

2 **SCAN THE ENTIRE SKY**

Use your device's camera to explore your Starlink's entire field of view.

3 **STAND STILL**

Try not to move your device too much and remember that your Starlink is only a couple feet above the ground.

I'M READY!

CONTRACTS

Method Name: Browse **Class Name:** User

ID: 1

Clients (Consumers): User

Associated Use Cases: SendBrowsinRequestToSatellite, SendBrowsingInformationToUser

Description of Responsibilities:

1. User starts browsing.

2. Send browsing information throug SendBrowsinRequestToSatellite method

3. Retrive browsing information from SendBrowsingInformationToUser method.

4. Displaybrowsing information on user device.

Arguments Received: String

Type of Value Returned: String.

Pre-Conditions: ConnectedToUserTerminal()

Post-Conditions:

Method Name: SendBrowsingRequestFromSatellite.   **Class Name:** User Terminal

ID: 2

Clients (Consumers): Satellite

Associated Use Cases: ReceiveBrowsingRequest()

Description of Responsibilities:

1. Send the browsing information request to satellite.

2. The same arguments will also be massed on to the next method.

    Arguments Received: sting

Type of Value Returned: None

Pre-Conditions: The user terminal should be connected to the satellite, User should browse.

Post-Conditions: The satellite should have to be connected to a ground station.

Method Name: SendBrowsingRequestTogroundStation.   **Class Name:**Satellite

ID: 3

Clients (Consumers): ReceiveBrowsingRequest()

Associated Use Cases ReceiveBrowsingRequest()

Description of Responsibilities:

1. The request received from user will have to be forwarded till ground station and then processed the info.

Arguments Received: String

Type of Value Returned: STRING

Pre-Conditions: Satelite should be connected to ground station, Satellite should have a browsing request.

Post-Conditions:

Method Name: SearchbrowningRequest()   **Class Name:** Data Center

ID: 4

Clients (Consumers): SendBrowsingInformationToGroundStation()

Associated Use Cases: SendBrowsingInformationToGroundStation()

Description of Responsibilities:

1. Search the data center for the requested browsing information.

2. If the browsing reuest is processed send the information to ground Station.

3. Else, save the four variables in the database.

Arguments Received: String

Type of Value Returned: String

Pre-Conditions: Data center should receive the browsing request.

Post-Conditions: Data Center is send this information to Ground station.

Method Name: Login   **Class Name:** User

ID: 5

Clients (Consumers): Authenticator,User Terminal

Associated Use Cases: Login

Description of Responsibilities:

1. Send Usename and Password as arguments to authenticator.

2. Authenticator verifies the login credentials, if the credentials match connect to user terminal.

3. Else, Throw error message

Arguments Received: UserID, password

Type of Value Returned: Boolean

Pre-Conditions: The username and password should not be null

Post-Conditions: Should Connect to user terminal if verified.

DATABASE DESIGN

User(FirstName, LastName, Address, Email, PlanType, UserID, UserPassword)

FirstName, LastName, Address should be non-null.

Email, UserID should be non-null and unique.

UserID will be the primary key

User Terminal(TerminalID, TerminalRange, TerminalDisplayName, Price)

TerminalID should be non-null and unique (primary key)

Satellite(SatelliteID, CurrentSatelliteLocation, SatelliteRange, SatelliteCapacity).

SatelliteID should be non-null and unique. (primary key)

CurrentSatelliteLocation should be non-null.

Launch Pad(LaunchPadID, LaunchPadLocation)

LaunchPadID should be not null and unique. (primary key)

Rocket(RocketID, RocketType, Capacity, LaunchDate, LaunchLocation)

RocketID should be non-null and unique. (primary key)

Ground Station(StationID, Name, GroundStationLocation, ServerCapacity)

StationID should be non-null and unique. (primary key)

Data Center(DataCenterID, DataCenterLocation, GroundStation ID, DataCapacity)

DataCenterID should be non-null and unique. (primary key)

GroundStation ID should be non-null and should exist in the ground station table.

FUNCTIONAL SPECIFICATION

1. A dish is a Wi-Fi router, power supply, and mounting brackets are required to receive two-way satellite internet service ("Services").This dish is called as the user terminal.

2. Based on continuous expertise and innovation, the objectives performance may be revised from time to time.

3. Satellite Network: For both LANs and WANs, Satellite Network Communications offers support for the use of satellite connections. As a component of a remote access solution, Fiber Optic Broadband offers fiber optic broadband service.

4. Broadband and Telemetry through Fiber Optic

5. Satellite Network Filling: revenue In the event of late payment of SNF bills, the union makes a provision for interest of 6% from the due date.

6. ROHC: Improved efficiency and great robustness are the main benefits of ROHC over VJHC. Over lines with high bit error rates and lengthy round trip times, such as cellular and others.

REFERENCES

Uhm, M. S., Chang, D. P., & Lee, B. S. (2022). Technology Trends in Communication Payload for the Broadband LEO

Satellite Constellation. *Electronics and Telecommunications Trends*, *37*(3), 41-51. Retrieved from

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Project Management Deliverables

Allocation of activities to team members

The group met and collaborated on every aspect of this project.

Minutes of Meeting

Meeting 1:

Meeting for	Group 5 – June 14th	
Meeting Type	SAPM Group Discussion	
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi	
Discussion	Project Idea selection	
Discussion carried out on different ideas -Satellite based internet technology, Employee management system		
Conclusion		
Discussed scope of each idea		
Action Items	**Person Responsible**	**Deadline**
Research more on different ideas.	Jishnu Vakharia	June 20th
Research more on different ideas.	Anvitha Madadi	June 20th
Research more on different ideas.	Siri Donuru	June 20th
Research more on different ideas.	Monahar Kalavari	June 20th
Research more on different ideas.	Shekhar Subedi	June 20th
Next Meeting	June 21st	

Meeting 2:

Meeting for	Group 5 – June 21st		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Brainstorming and Finalizing Project Topic		
Finalized on "Satellite Based Internet Technology"			
Conclusion			
"Satellite Based Internet Technology"			
Action Items		**Person Responsible**	**Deadline**
Research more on topic		Jishnu Vakharia	June 27th
Research more on topic		Anvitha Madadi	June 27th
Research more on topic		Siri Donuru	June 27th
Research more on topic		Monahar Kalavari	June 27th
Research more on topic		Shekhar Subedi	June 27th
Next Meeting	June 28th		

Meeting 3:

Meeting for	Group 5 – June 28th		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Discussed the ideas on the project based on the previous week's research		
Discussed current system Discussed Proposed System			
Conclusion			
Documented the problem and proposed idea			
Action Items		**Person Responsible**	**Deadline**
Documentation of Proposed idea		Jishnu Vakharia	July 4th
Documentation of Proposed idea		Anvitha Madadi	July 4th
Documentation of Problem Statement		Siri Donuru	July 4th
Documentation of Problem Statement		Monahar Kalavari	July 4th

Documentation of Problem Statement	Shekhar Subedi	July 4th
Next Meeting	July 5th	

Meeting 4:

Meeting for	Group 5 – July 5th		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Discuss on the use cases and context Diagram		
Conclusion	Finalized the context diagram		
Action Items		Person Responsible	Deadline
Context diagram & Research on the use-cases		Jishnu Vakharia	July 11th
Context diagram & Research on the use-cases		Anvitha Madadi	July 11th
Research on the high leveluse-cases		Siri Donuru	July 11th
Research on the high leveluse-cases		Monahar Kalavari	July 11th
Research on the high level use-cases		Shekhar Subedi	July 11th
Next Meeting	July 12th		

Meeting 5:

Meeting for	Group 5 – July 12th		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Use case diagram and Chereography Diagram		
Conclusion	Finalized the use case diagram and chereography Diagram.		
Action Items		Person Responsible	Deadline
Chreography & Use-case diagram		Jishnu Vakharia	July 18th
Chreography & Use-case diagram		Anvitha Madadi	July 18th
Chreography & Use-case diagram		Siri Donuru	July 18th
Chreography & Use-case diagram		Monahar Kalavari	July 18th
Chreography & Use-case diagram		Shekhar Subedi	July 18th
Next Meeting	July 19th		

Meeting 6:

Meeting for	Group 5 – July 19th		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi.		
Discussion	Use case description and Data dictionary		
Discussed and documented Use-case description and Data dictionary			
Conclusion	Finalized Use case description and data dictionary.		
Action Items		**Person Responsible**	**Deadline**
Use-case description and Data dictionary		Jishnu Vakharia	July 22nd
Use-case description and Data dictionary		Anvitha Madadi	July 22nd
Use-case description and Data dictionary		Siri Donuru	July 22nd
Use-case description and Data dictionary		Monahar Kalavari	July 22nd
Use-case description and Data dictionary		Shekhar Subedi	July 22nd
Next Meeting	July 23rd		

Meeting 7:

Meeting for	Group 5 – July 23rd		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Class Diagram		
Discussed on Class diagrams			
Conclusion	Finalized Class Diagram		
Action Items		**Person Responsible**	**Deadline**
Class Diagram		Jishnu Vakharia	July 25th
Class Diagram		Anvitha Madadi	July 25th
Class Diagram		Siri Donuru	July 25th
Class Diagram		Monahar Kalavari	July 25th
Class Diagram		Shekhar Subedi	July 25th

Meeting 8:

Meeting for	Group 5 – July 26th		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Sequence Diagram		
Conclusion	Finalized Sequence Diagram		
Action Items		**Person Responsible**	**Deadline**
Sequence Diagram		Jishnu Vakharia	July 29th
Sequence Diagram		Anvitha Madadi	July 29th
Sequence Diagram		Siri Donuru	July 29th
Sequence Diagram		Monahar Kalavari	July 29th
Sequence Diagram		Shekhar Subedi	July 29th
Next Meeting	July 29th		

Meeting 9:

Meeting for	Group 5 – July 29th		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Contracts		
Conclusion	Finalized Contracts		
Action Items		**Person Responsible**	**Deadline**
Contracts		Jishnu Vakharia	August 1st
Contracts		Anvitha Madadi	August 1st
Contracts		Siri Donuru	August 1st
Contracts		Monahar Kalavari	August 1st
Contracts		Shekhar Subedi	August 1st
Next Meeting	August 2nd		

Meeting 10:

Meeting for	Group 5 – August 2nd		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Data Base Design and Interface Design		
Conclusion	Finalized Data Base Design and Interface Design		
Action Items		Person Responsible	Deadline
Data Base Design		Jishnu Vakharia	August 4th
Data Base Design		Anvitha Madadi	August 4th
Interface Design		Siri Donuru	August 4th
Interface Design		Monahar Kalavari	August 4th
Interface Design		Shekhar Subedi	August 4th
Next Meeting	August 5th		

Meeting 11:

Meeting for	Group 5 – August 5th		
Meeting Type	SAPM Group Discussion		
Attendees	Jishnu Vakharia, Anvitha Madadi, Siri Donuru, Manohar Kalaveri, Shekhar Subedi		
Discussion	Project Management Deliverables.		
Report documentation, proof-read, and submission			
Conclusion	Completed Report documentation, proof-read, and submission.		
Action Items		Person Responsible	Deadline
Report and Presentation		Jishnu Vakharia	August 10th
Report and Presentation		Anvitha Madadi	August 10th
Report and Presentation		Siri Donuru	August 10th
Report and Presentation		Monahar Kalaveri	August 10th
Report and Presentation		Shekhar Subedi	August 10th
Next Meeting	-		