

REQUIREMENTS GATHERING SUMMARY REPORT

PROJECT 1,2,3,4,5

(Week 1 , T2, 2024)

- Project 1 - VR Sun Cycle Smart Bike
- Project 2 - Elderly Wearable Technology
- Project 3 - Athlete Wearable Technology
- Project 4 - Player Tracking
- Project 5 - Bugbox

1. Data Sources and Formats

Project	Current Data Sources	Future Data Sources	Data Formats
Project 1	VR sensors	-	JSON (assumed)
Project 2	External data	IoT devices via ThingSpeak	To be provided
Project 3	.fit files (Garmin, Strava)	-	CSV
Project 4	OpenCV, supervision	-	Quantitative data from video/camera stream
Project 5	User sessions, temporary data	User logins, projects, responses, rewards system	JSON

2. Data Volume, Frequency and Performance

Project	Data Volume	Frequency	Performance
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<i>Project 1</i>	A couple megabytes	Every 10 seconds	No latency, speed, scalability requirement
<i>Project 2</i>	5-10GB	Real-time	
<i>Project 3</i>	50MB	-	
<i>Project 4</i>	Normal to medium	Real-time	
<i>Project 5</i>	Small	Real-time	Real-time access

3. Data Quality and Cleanup

<i>Project</i>	<i>Data Quality</i>	<i>Cleanup Required</i>
<i>Project 1</i>	-	-
<i>Project 2</i>	To be provided	To be provided
<i>Project 3</i>	Varies, mostly clean	-
<i>Project 4</i>	To be assessed	To be assessed
<i>Project 5</i>	No missing values or cleanup needed	-

4. Data Shape and Real-Time Needs

<i>Project</i>	<i>Data Shape</i>	<i>Real-Time Needs</i>
<i>Project 1</i>	Semi-structured	-
<i>Project 2</i>	Structured or semi-structured (To be confirmed)	Real-time (To be confirmed)
<i>Project 3</i>	Structured (CSV)	-
<i>Project 4</i>	Real-time	Real-time
<i>Project 5</i>	Research	Real-time

5. Pain Points and Data Warehouse Need

Project	Pain Points	Data Warehouse Need
<i>Project 1</i>	-	SQL server and API access
<i>Project 2</i>	ThingSpeak limitations	Needed for improvement
<i>Project 3</i>	No current need for data warehouse	Good practice but unnecessary
<i>Project 4</i>	Need for pre-setup warehouse	Helpful for faster setup
<i>Project 5</i>	Lack of backend knowledge	External data solution needed

6. Data Warehouse Setup Ideas

Project	Setup Ideas
<i>Project 1</i>	SQL server, API access
<i>Project 2</i>	Ideas for preprocessing
<i>Project 3</i>	SQL database, API
<i>Project 4</i>	Prefer MongoDB, API for UI streaming
<i>Project 5</i>	External data solution, integration with EC2

Projects with Similar Requirements

Real-Time Data Needs

- **Project 2:** Requires real-time data for tasks like fall detection (To be confirmed).
- **Project 4:** Uses real-time streaming data from video/camera stream.
- **Project 5:** Needs real-time access for its live service.

Data Warehouse Requirement

- **Project 1:** SQL server setup and API access.
- **Project 2:** Data warehouse needed to overcome ThingSpeak limitations.
- **Project 4:** Data warehouse setup would help in faster implementation.
- **Project 5:** External data solution with data warehouse team support.

Data Formats

- **Project 1:** Assumed to use JSON format.
- **Project 5:** Uses JSON format for data configuration.

Pain Points with Current Data Methods

- **Project 2:** Limited functionalities with ThingSpeak.
- **Project 4:** Pre-setup warehouse would speed up the process.
- **Project 5:** Lack of backend knowledge in the team.

Ideas for Data Warehouse Setup

- **Project 1:** SQL server and API.
- **Project 4:** Prefers MongoDB with API for UI streaming.
- **Project 5:** External data solution integrated with EC2.