FRESHLENS

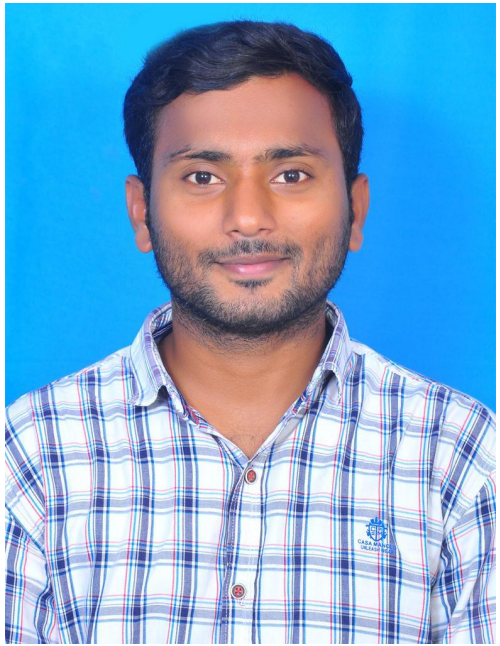
Sprint 2 - TEAM-4 Sierra

AGENDA

- Project Review
- MVP
- Technologies
- Algorithms
- Diagrams
- Product and Sprint Backlog
- Metrics
- Retrospective
- Sprint 3 Plans
- Demo

TEAM MEMBERS

Chandu Pentela
Project Manager



Banoth Ashok
Backend Developer

Jaya Venkata Vara Sai Prakash Perumalla
Backend Developer

TEAM MEMBERS

Ashish Padma
Machine Learning Engineer

Poojitha chinthala
Machine Learning Engineer

Sushmitha Reddy Poddaturu
Machine Learning Engineer

TEAM MEMBERS

Satish kumar reddy indla
Developer

Aishwarya Kongari
Developer

Changes based on Professor feedback

- More explanation of technologies slides.
- Algorithm slide added.
- Removal of market analysis

PROBLEM STATEMENT

Many individuals want to maintain a healthy diet but they find it challenging to keep track of their diet and analyse it. The traditional way where keep logging food intake often time and it is prone to inaccuracies, which leads to poor diet choices and even demovitates the individual.

There needs to be a way for a more intuitive and efficient way to understand the nutritional values of fruits and easy to keep track of the intake. Which makes individuals to take healthy diet options.

PROJECT DESCRIPTION

Project Name:	FreshLens
Team:	Sierra
Project Description:	FreshLens revolutionizes the tracking of diet by instant recognition and nutritional analysis of fruits and vegetables only by photo snap. **For** health conscious individuals **who** find traditional diet tracking inconvenient. **the** Freshlens **is a** mobile application **that** simplifies healthy eating by instantly identify fruits and vegetables through photo and provide nutritional insights, **unlike** traditional complicated manual tracking methods **our application** offers a seamless and effective way to understand and improve diet.
Benefit Outcomes:	User get an in depth understanding about the nutritional value of their fruits and vegetables, which helps them take perfect choices. It eliminates the manual logging, which makes the diet tracking efficient. It even educates the users about the food variety and nutritional benefits, promoting healthy choices.
Github Link:	https://github.com/htmw/2024S-Sierra

PERSONAS

- **Name:** Emily
- **Age:** 30
- **Occupation:** Marketing Analyst
- **Interests:** Yoga, cooking, and reading health blogs
- **Goals:** Maintain a balanced diet
- **Challenges:** Struggles to find accurate nutritional info for fresh produce
- **How Your App Helps:** FreshLens offers instant nutritional content, supporting her balanced diet and culinary exploration.

PERSONAS

- **Name:** Alex
- **Age:** 35
- **Occupation:** Software Engineer
- **Interests:** Tech gadgets, hiking, fast cooking
- **Goals:** Eat healthily despite a busy schedule
- **Challenges:** Has limited time for meal prep and nutrition tracking
- **How Your App Helps:** FreshLens easily fits in busy lifestyle, it's designed for healthy eating with quick scan

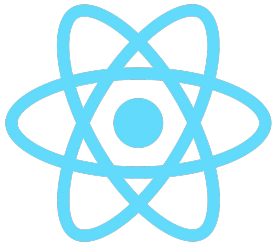
PERSONAS

- **Name:** Jordon
- **Age:** 26
- **Occupation:** Personal Trainer
- **Interests:** Gym workouts, sports nutrition, bodybuilding
- **Goals:** Optimize diet for muscle gain and performance
- **Challenges:** Needs precise macro and micro intake from natural foods
- **How Your App Helps:** FreshLens helps in tracking nutritional values, enhancing his meal planning.

Minimum Viable Product (MVP)

- Photo-based food recognition.
- User-friendly interface design.
- Essential nutritional info display.
- User authentication system.
- Personal profile customization.
- Weekly dietary analysis.

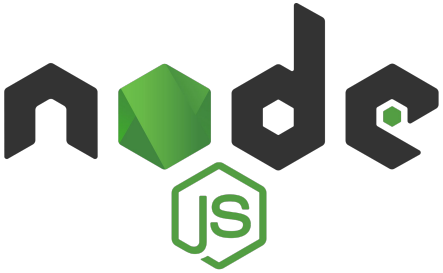
Technologies - Frontend



We will be using React native expo for developing UI for the mobile application and expo is wrapper around react native and it makes prototyping faster.

Expo

Technologies - Backend



We will be using node js and fastapi for backend and mongodb as database and its nosql database and even firebase for Authentication and storing images using firebase cloud storage.

Technologies - Machine Learning

We will be using tensorflow to perform machine learning tasking and tensorflow is deep learning framework and it will be used for implementing CNN algorithm.

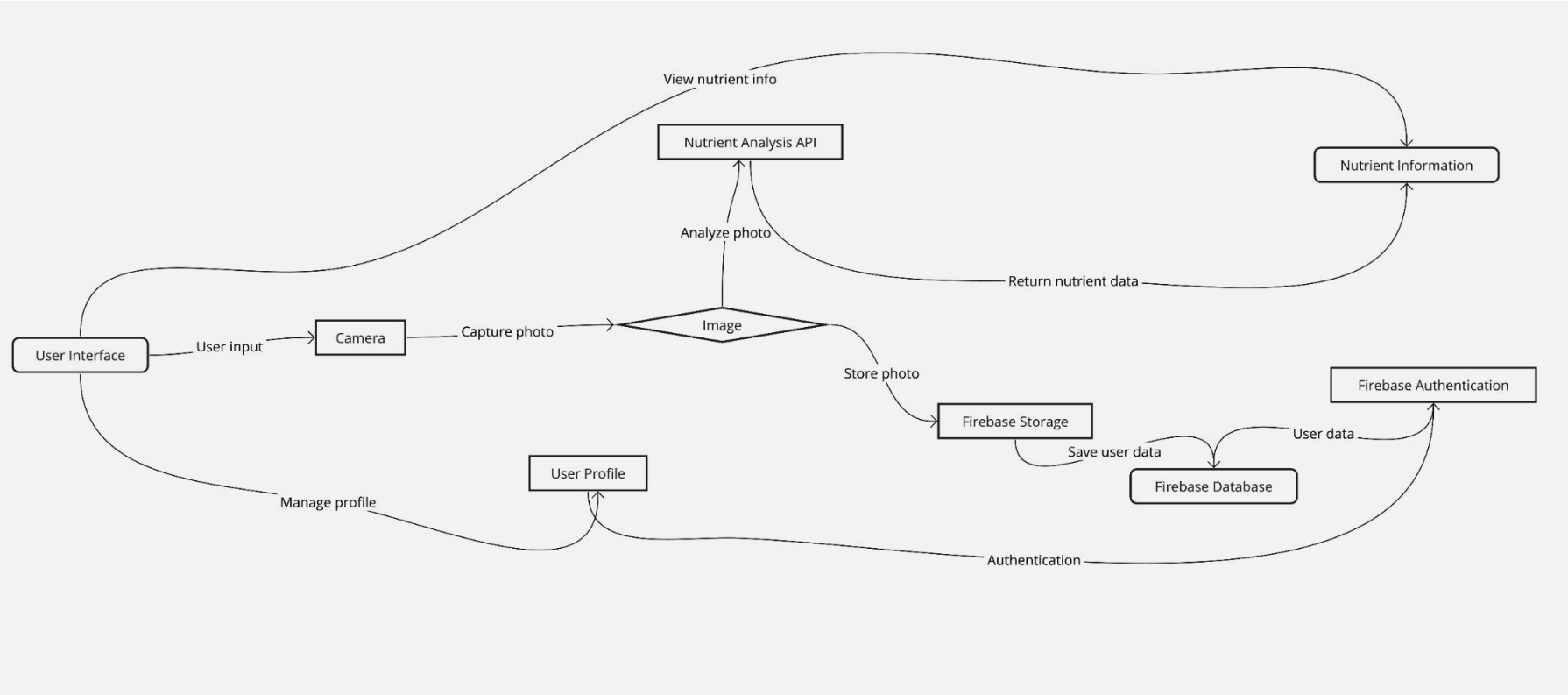
TECH STACK

Figma is used for designing of the application and sharing the application ideas on how it should look like.

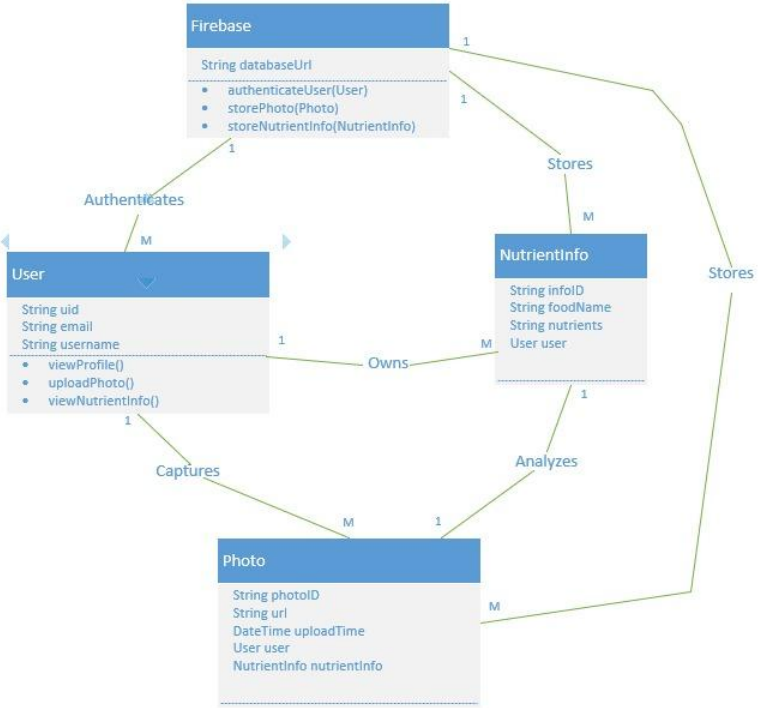
Machine Learning Algorithm

- CNN Architecture is used.
- Inside CNN use of DenseNet121 Algorithm.
- The DenseNet model is trained using fruits and vegetables dataset. Due to its efficiency and high accuracy, the DenseNet model effectively learns from the data and accurately identifies objects.

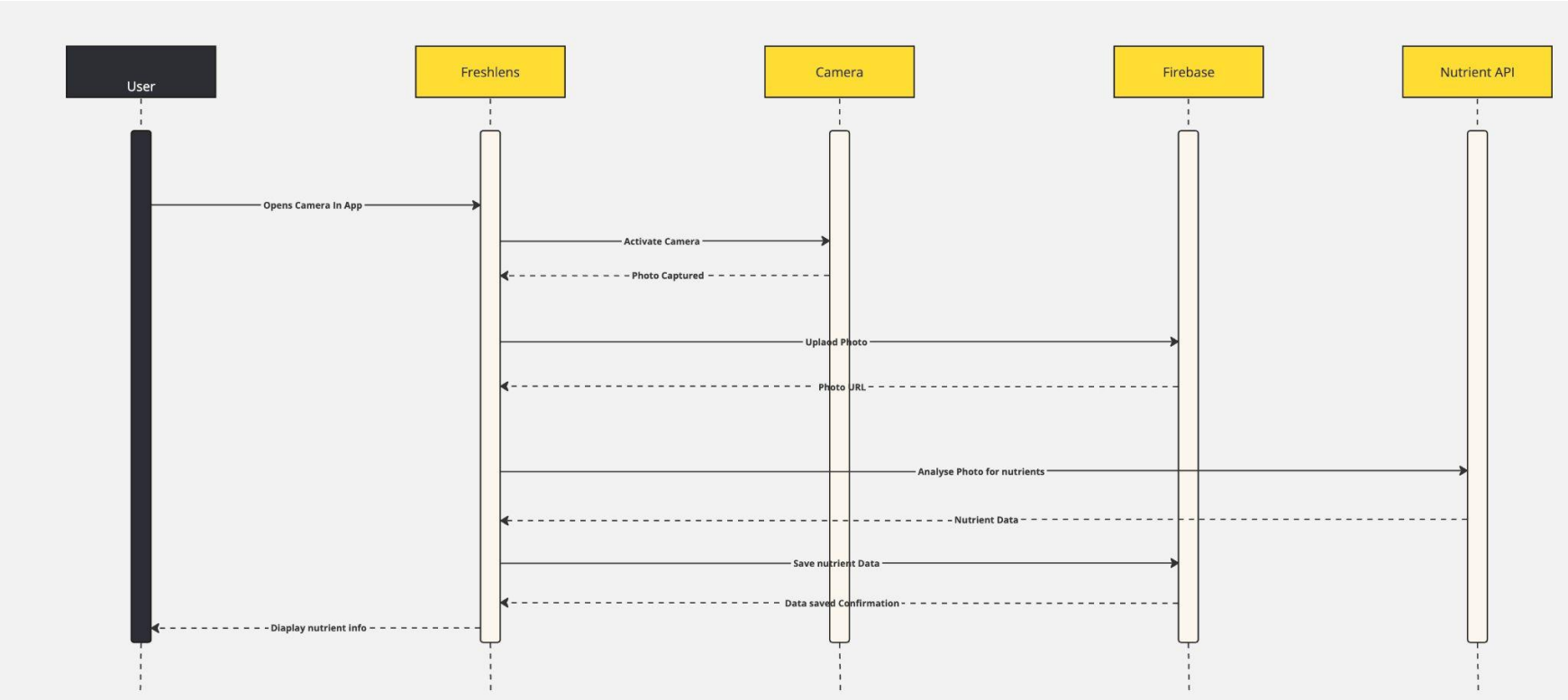
Conceptual Architecture Diagram



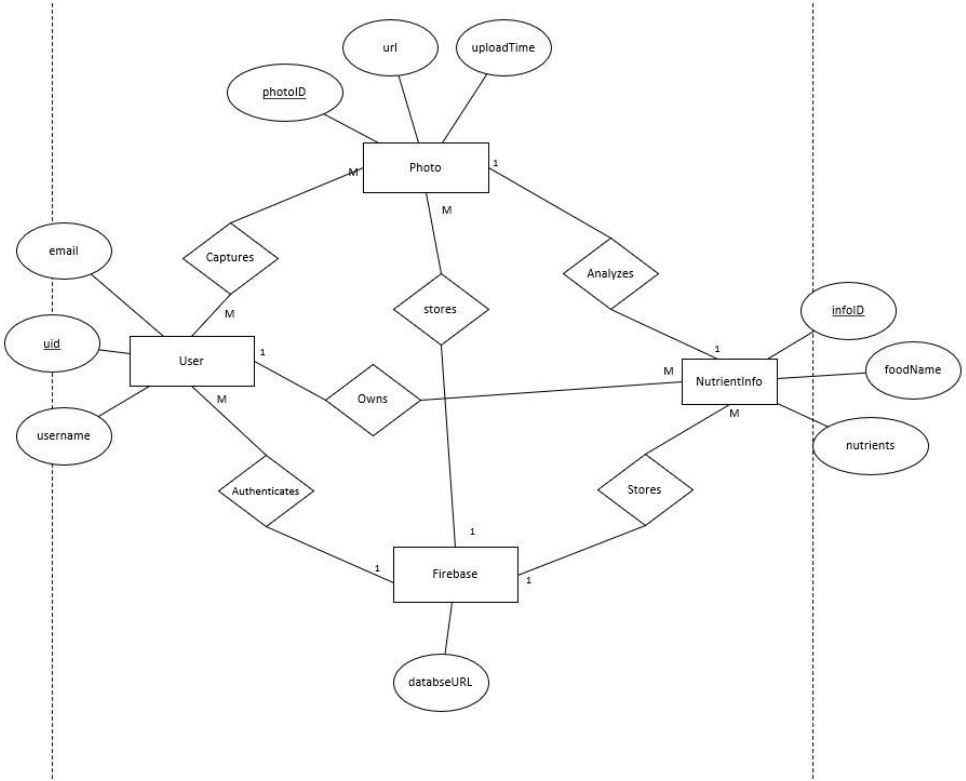
Class Diagram



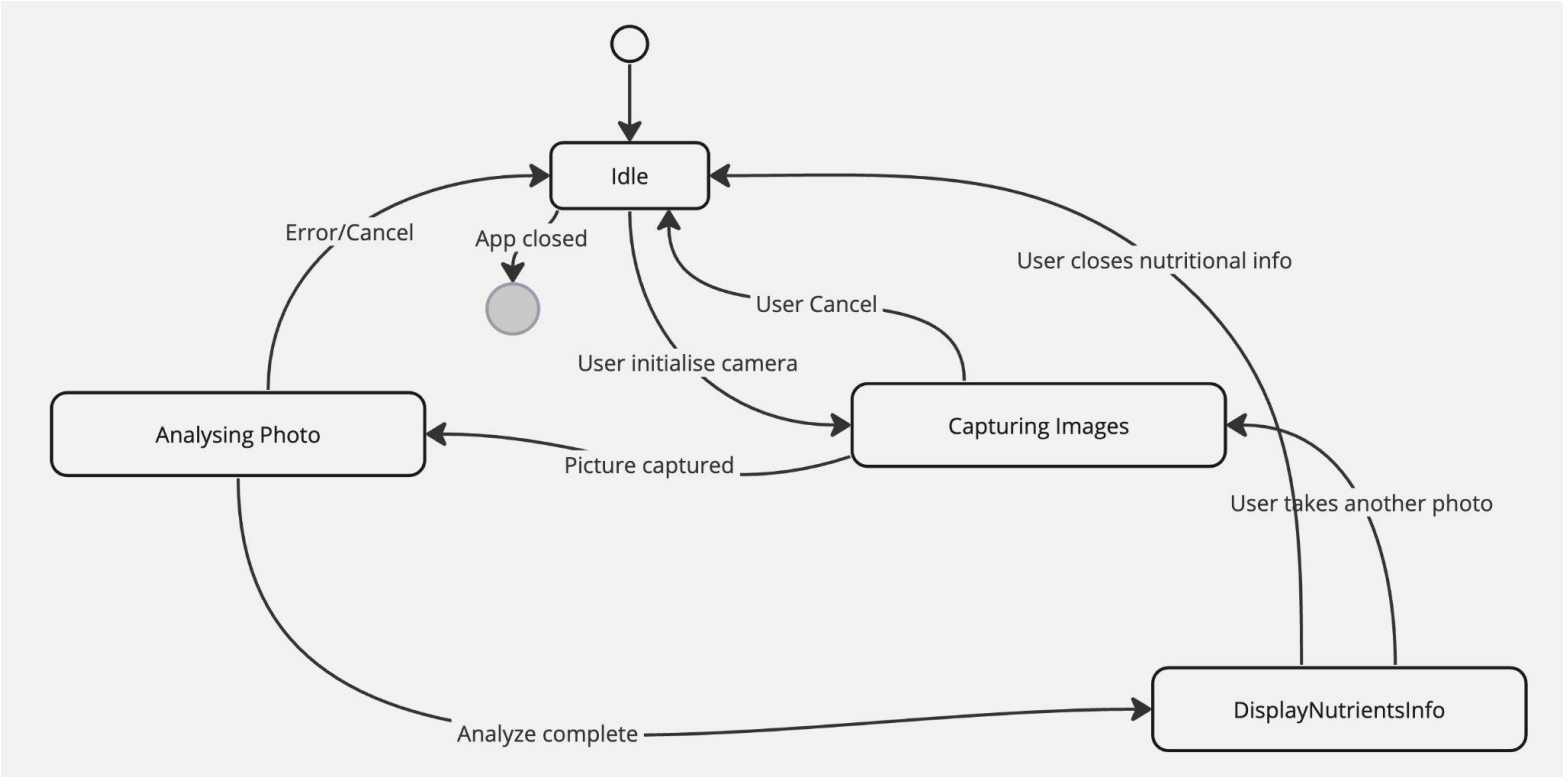
Sequence Diagram



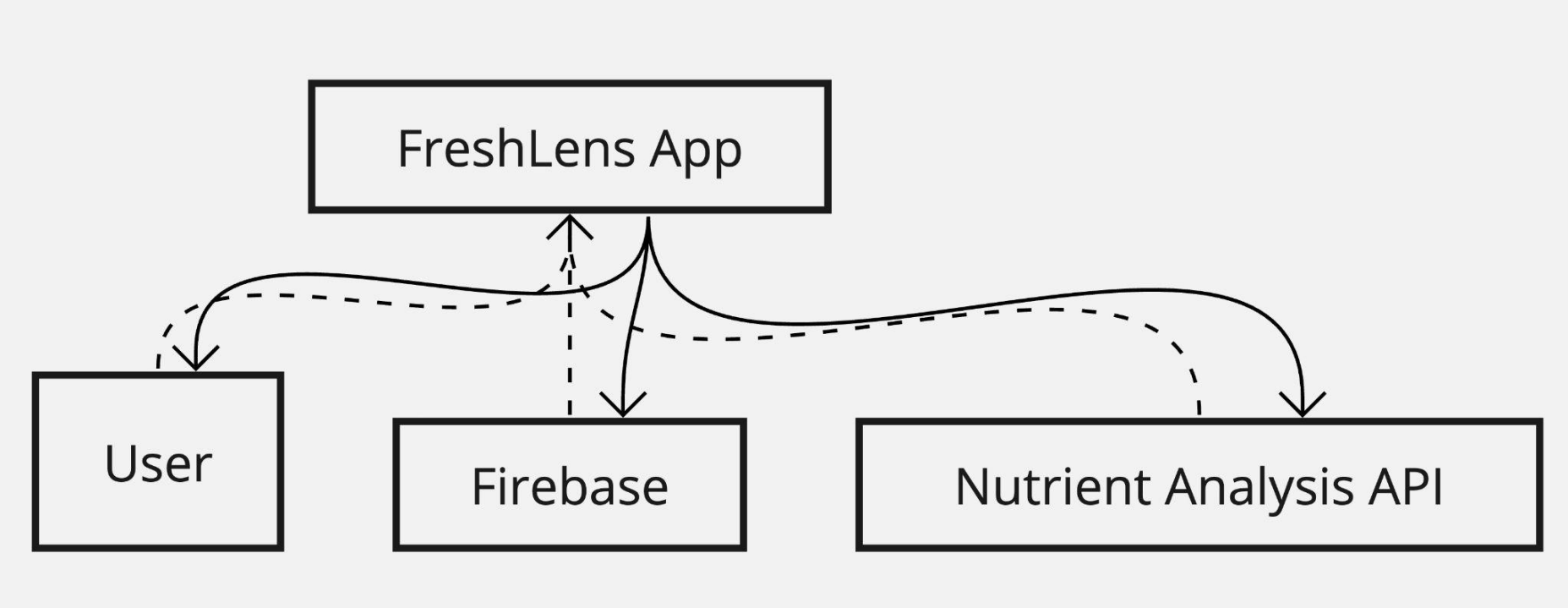
Entity Relationship Diagram



State diagram



Context Diagram



User Stories In Detail

User Story 1
As a health-conscious individual,
I want to quickly find the nutritional information of various fruits,
So that I can make informed decisions about what to include in my diet.

Acceptance Criteria:

- User can search and find fruit nutritional info within seconds.
- Display data consists of calories, vitamins, minerals, sugar in clear format.

User Story 2
As a user who is trying trying to maintain a healthy diet,
I want to log my daily fruit intake effortlessly,
So that I can keep track of my consumption and nutritional intake.

Acceptance Criteria:

- Fruit logging is via image capturing.
- Summary is provided on weekly or monthly based.

User Stories In Detail

User Story 3
As a user who is interested in healthy eating,
I want to receive feedback on my fruit consumption patterns,
So that I can identify areas for improvement and maintain a balanced diet.

Acceptance Criteria:

- App gives feedback to user by saying about nutrients.
- Get more information about the diet.

User Story 4
As a motivated individual,
I want to set personal goals related to fruit consumption,
So that I can work towards a healthier diet and track my progress.

Acceptance Criteria:

- Users can set goals on fruit intake.
- Motivational tips are provided to encourage goal achievement.

User Stories In Detail

User Story 5
As a user who is curious about nutrition,
I want to access educational content about the health benefits of various fruits,
So that I can learn more about why certain fruits are beneficial and get motivated to include them in my diet.

Acceptance Criteria:

- Blogs about the diet is provided.
- Content sharing about importance of healthy food.

User Story 6
As a busy individual,
I want to add fruit consumption into my meal plans,
So that I can ensure that I am consistently incorporating a variety of fruits into my diet.

Acceptance Criteria:

- Help in keeping track of their diet.
- In hard analysis of their diet.

User Stories In Detail

User Story 7
As a person with specific dietary restrictions or allergies,
I want to filter out fruits that are not suitable for my diet,
So that I can safely adhere to my dietary needs while consuming fruits.

Acceptance Criteria:

- Keep in track of user diet restrictions.
- Alerts users on any fruit which might cause user an allergy.

User Story 8 :
As a socially motivated individual,
I want to share my fruit consumption goals and achievements with friends,
So that I can enjoy support and friendly competition.

Acceptance Criteria:

- Sharing goals is possible.

User Stories In Detail

User Story 9:
As a user interested in local and seasonal fruits,
I want to receive recommendations for fruits based on my location and the season,
So that I can enjoy fresher produce and support local agriculture.

Acceptance Criteria:

- Provide benefits about the seasonal fruits.

User Story 10 :
As a user focused on overall health,
I want to track my water intake alongside my fruit consumption,
So that I can ensure I'm staying adequately hydrated.

Acceptance Criteria:

- Provides details on which fruit have how much water content.

Product Backlog - Overview

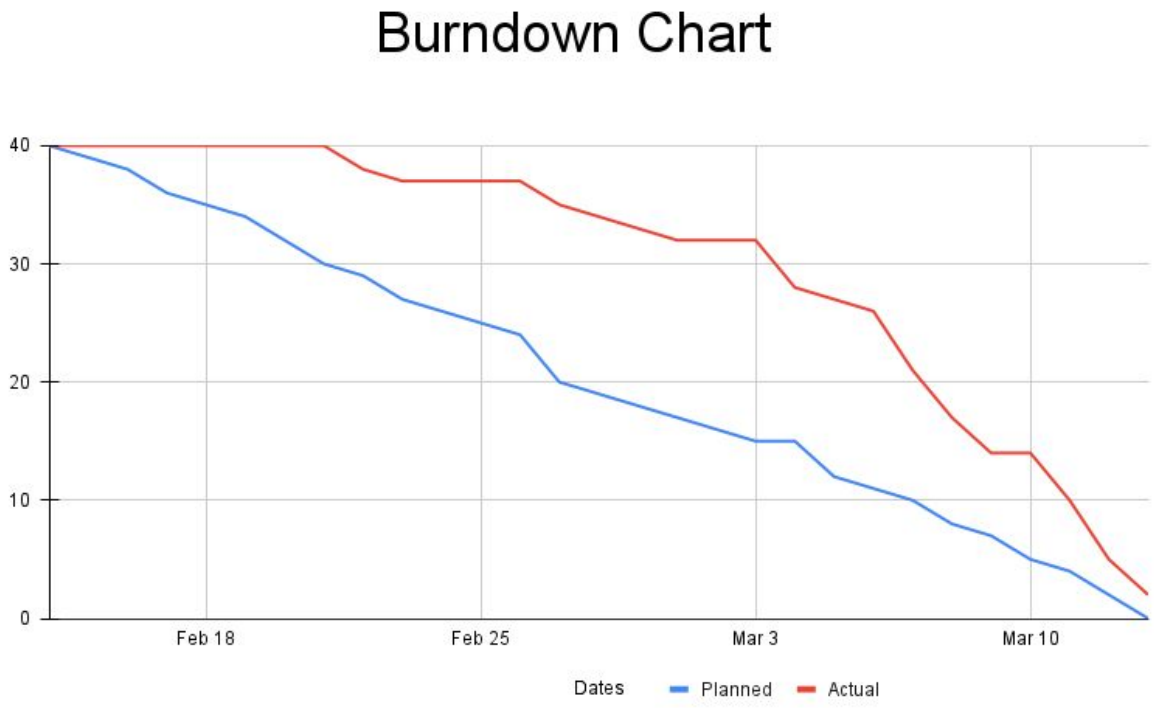
Project Backlog

Sprint	User Story	Task	Priority	User Type	Status
2	As a developer, set up the development environment.	Establish basic app structure and navigation.	High	Developer	Completed
2	As a "Health Enthusiast", create a personalized profile.	Design/implement user profile setup screen.	High	Health Enthusiast	Completed
2	As a "Health Enthusiast", create a personalized profile.	Implement user authentication.	High	Health Enthusiast	Completed
2	As a "Fitness Tracker", log meals automatically by taking pictures.	Implement image capturing	Medium	Fitness Tracker	Completed
2	As a "Fitness Tracker", understand and collect data.	Collect and annotate dataset for food recognition.	High	Fitness Tracker	Completed
3	As a "Fitness Tracker", log meals automatically by taking pictures.	Integrate basic CNN model for food recognition.	Medium	Fitness Tracker	Not started
3	As a "Nutrition Novice", get nutritional info about consumed items.	DenseNet for accurate identification.	High	Nutrition Novice	Not started
3	As a "Nutrition Novice", get nutritional info about consumed items.	Fetch and display nutritional information.	High	Nutrition Novice	Not started
3	As a "Health Enthusiast", view and analyze diet trends.	Develop feature for tracking and visualizing dietary habits.	Medium	Health Enthusiast	Not started
3	As a "Health Enthusiast", view and analyze diet trends.	Provide basic analytics and insights based on food intake.	Medium	Health Enthusiast	Not started
4	As a "Fitness Tracker", receive personalized diet suggestions.	Implement system for diet suggestions based on data analysis.	Medium	Fitness Tracker	Not started
4	As a "Fitness Tracker", receive personalized diet suggestions.	Create personalized dashboard with insights and recommendations.	Medium	Fitness Tracker	Not started
4	As a user, give feedback to improve the app.	Design and implement in-app feedback mechanism.	Low	All User	Not started
4	Finalization tasks.	Conduct user testing, refine UI/UX, fix bugs.	Medium	Developer	Not started
4	Finalization tasks.	Finalize documentation, prepare for project presentation.	Medium	Developer	Not started

Sprint schedule

SNo	Task Description	Status	Story Points
1	Project Setup and Configuration	Done	4
2	Basic API Development for User Management	Done	3
3	Basic API Development for Machine Learning	Done	2
4	Implement Camera Access and Image Capture	Done	3
5	Develop Profile Screen	Done	4
6	Create Favorites Screen for Easy Access	Done	3
7	Integrate Bottom Navigation Bar	Done	2
8	Understand and Analyze Dataset	Done	1
9	Develop System Architecture Diagram	Done	4
10	Develop DataFlow Diagram	Done	3
11	Develop Sequence Diagram	Done	2
12	Develop Class Diagram	Done	4
13	Develop ER diagram	Done	3
14	Develop use case diagram	Done	2
			40

Burndown chart



Testing

1	Case ID	Description	Prerequisites	Test Steps	Expected Result	Status
2	TC01	Verify profile screen displays user information	User is logged in	1. Navigate to the profile screen	Profile screen loads with the user's information	Success
3	TC02	Check functionality of favorites screen	User has added items to favorites	1. Navigate to the favorites screen	Favorites screen lists all added items	Success
4	TC03	Test bottom navigation bar usability	User is logged into the app	1. Use the bottom navigation to switch screens	Each tap on navigation item leads to the correct screen	Success
5	TC04	Confirm camera access and image capture	App has permission to use the camera	1. Access the camera feature	Camera opens and captures an image successfully	Success

TEAM WORKING AGREEMENT

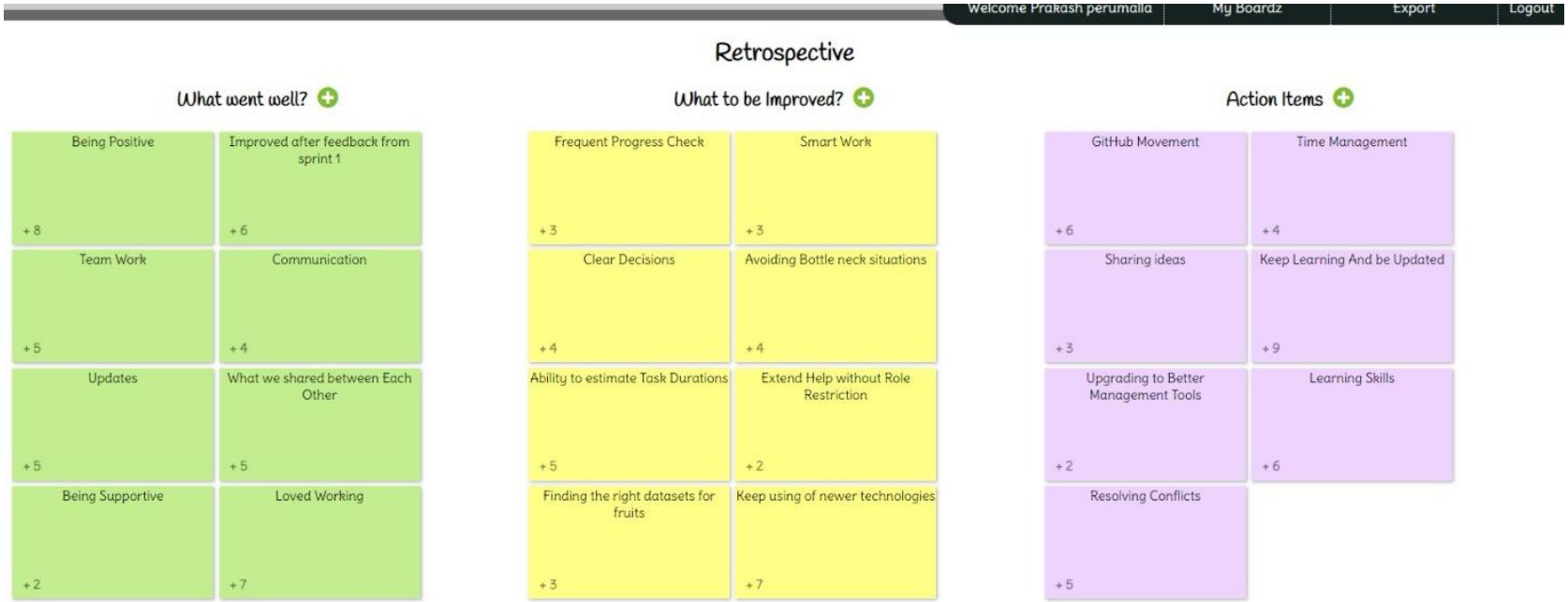
TEAM AGREEMENT

- If any individual faces any problem in their work, they can reach out to other individuals and request help and vice versa.
- There will be a team meeting held weekly once on Tuesday and all individuals must participate in the meeting and we will discuss the update about the project (workflow) during the call.
- A recurring meeting will be happening via Google Meet and will be getting mail prior day before the meeting starts.
- Everyone should respect each other and their decisions. We take a poll in the team meeting on the workflow and the majority will be the final decision from the team polls.
- Inappropriate behavior is not acceptable and will be informed to the professor immediately.
- Missing more than 4 calls is also not acceptable and will be informed to the professor.
- Everyone should give equal contribution to the project and should work as a team.
- All work should be done, prior 1 day before the due date.

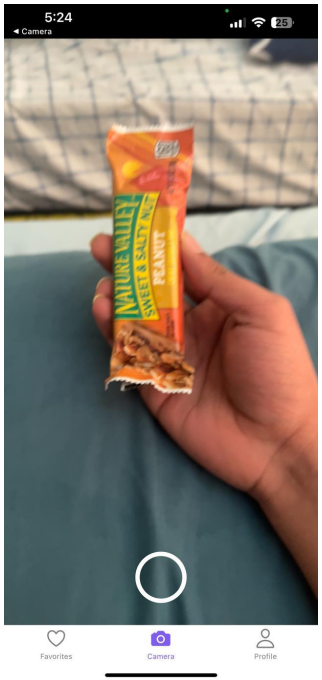
Teammates signature

1. Ashish Padma
2. Poojitha chinthala
3. Jaya Venkata Vara Sai Prakash Perumalla
4. Chandu Pentela
5. Aishwarya Kongari
6. Sushmitha Reddy Poddaturu
7. Satish kumar reddy indla
8. Banoth Ashok

RETROSPECTIVE



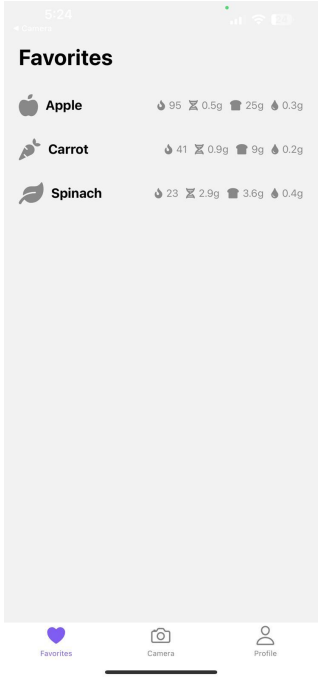
Demo Screenshots



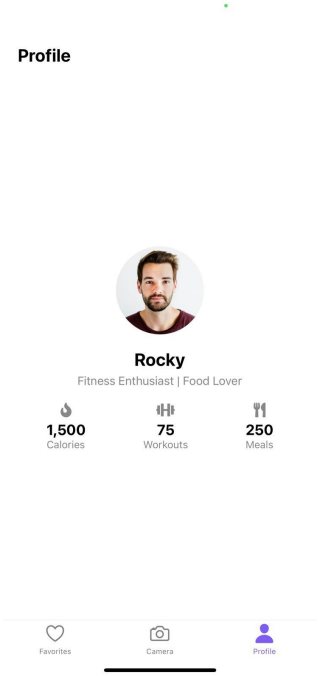
Favorite Screen

Capture Modal

Demo Screenshots



Favorite Screen



Profile Screen

API / Backend

FastAPI is setup for handling image and even for handling Machine Learning and where as Node js is used for Managing User data and mongodb have nutrients data. Initial REST API is created which have basic end points.

Next Steps

- Implement CNN Model
- Deploy DenseNet Identification
- Design Data API
- Visualize Diet Trends
- Generate Nutritional Insights

Wikipage link

https://github.com/htmw/2024S-Sierra/wiki

Application Demo

THANK YOU