Personal Food Logging Application

PRESENTED BY:
Deepti Sharma(300075004)
Gurinder Kaur(300126568)
Bhavna (300071541)
Akshay Garg (300085575)

This presentation is submitted to Professor Shervin Shirmohammadi in partial fulfillment of the requirements for ELG 5100 course

CONTENT

- Introduction
- Goal & Objective
- Scope
- Project Organization
- Roles And Responsibilities
- Work Breakdown Structure
- Schedule Allocation
- Project Management Tool
- Resource Allocation
- Budget Allocation
- Tools And Technologies
- Demo
- Food Recognition Training Test

INTRODUCTION

•Project focuses on creating an application for food identification and then calorie and weight estimation.

•It will be a mobile based application working on basic platforms like Android and IOS.

•It will be created considering all the current applications to enhance the accuracy and thus efficiency of the project.

Goal and Objective

IThe main goal of this project is to create an application which recognises image and then applies artificial intelligence concepts to estimate the weight and calorie.

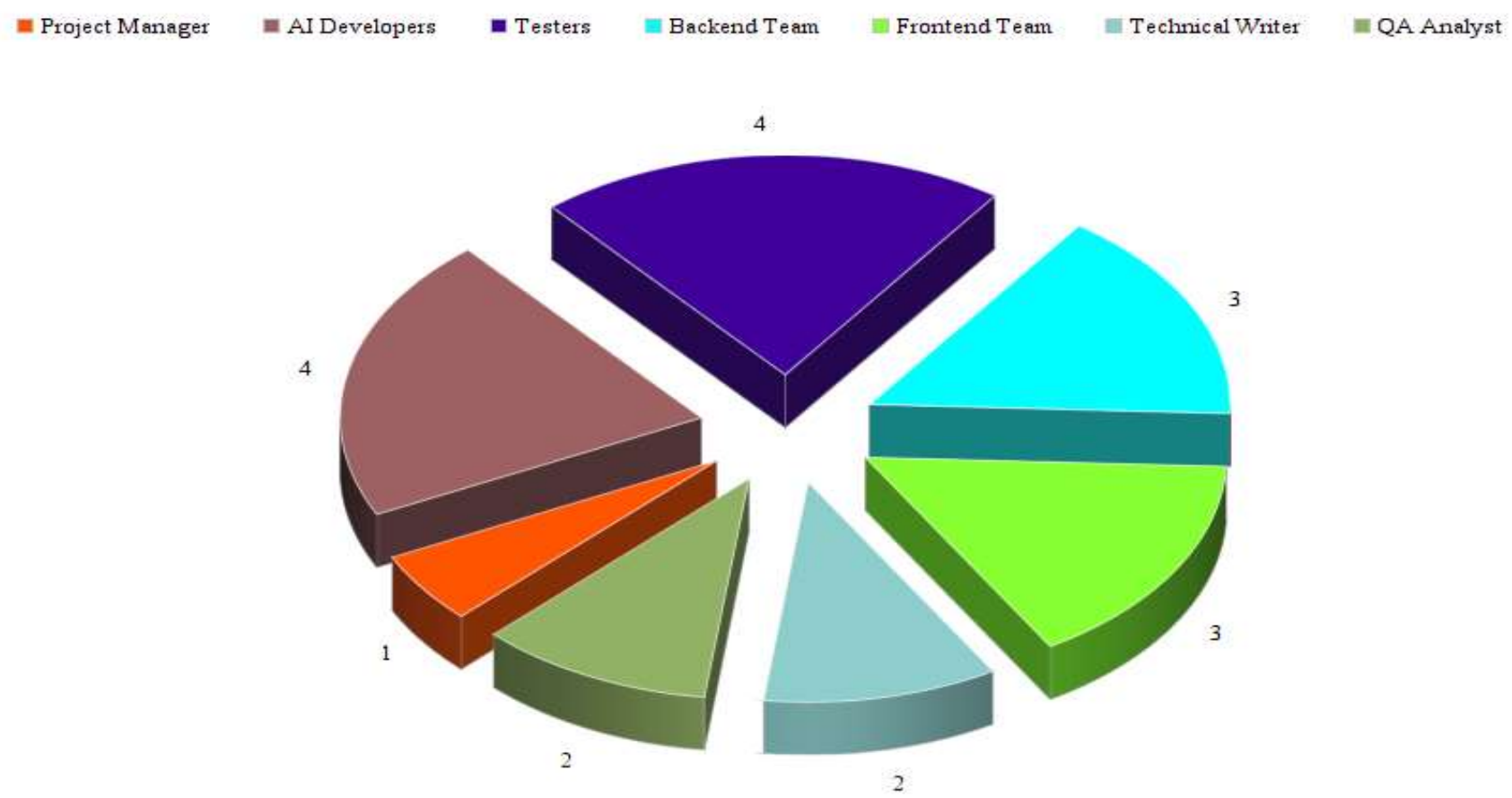
Therefore, the objectives is driven from the goal:

- Food Image should be saved and then analyzed for identification.
- Accurate methods applied for weight and Calorie Estimation.

SCOPE

- This application will work for Android and IOS version beyond 3.0.
- It can’t recognize the smallest of the spices like oil, salt, pepper etc.
- Food items which can be recognized by the application is limited to Ottawa region.
- User session will be temporary. Thus, history will not be stored.
- Software tool License will be provided by the company.

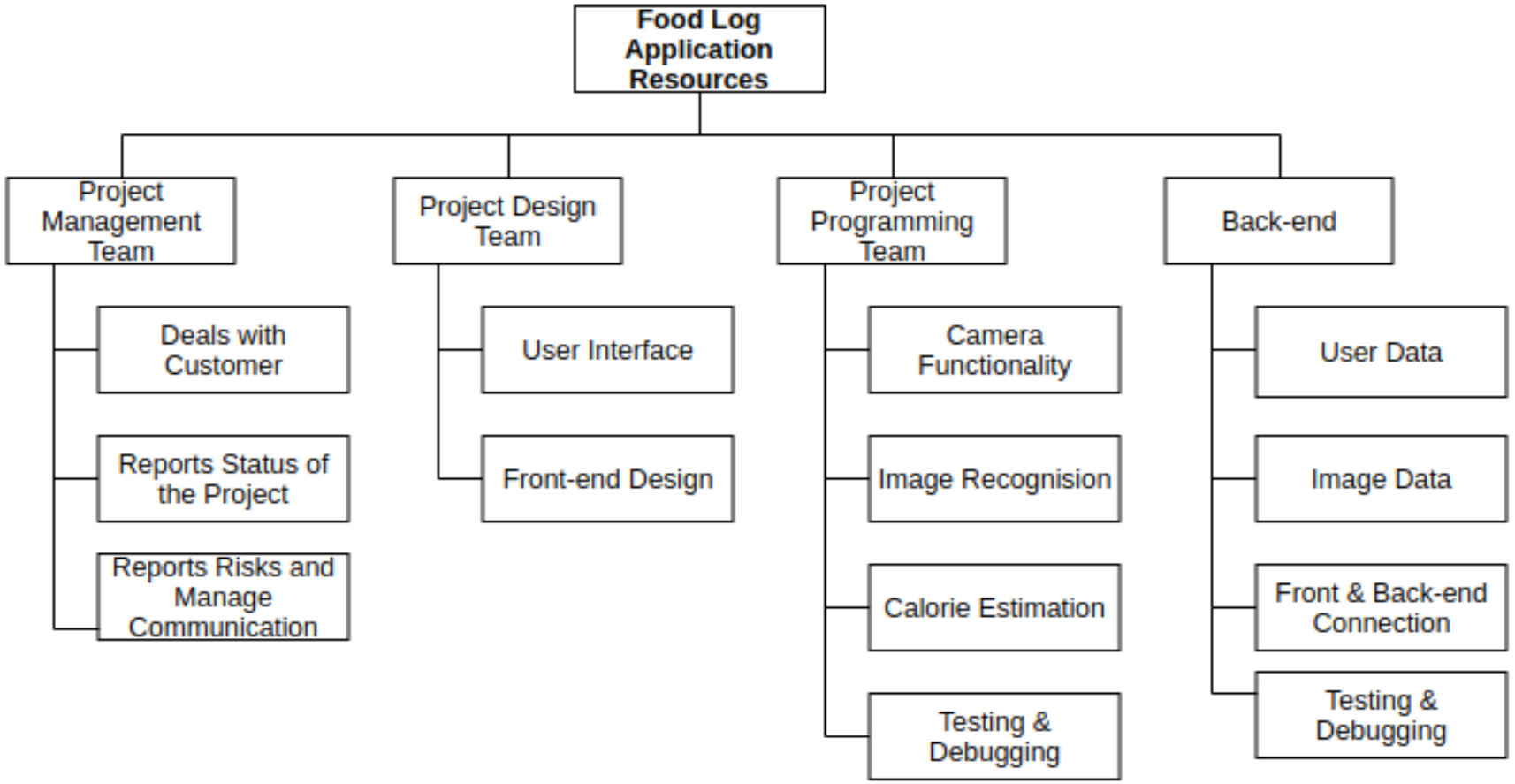
Project Organization



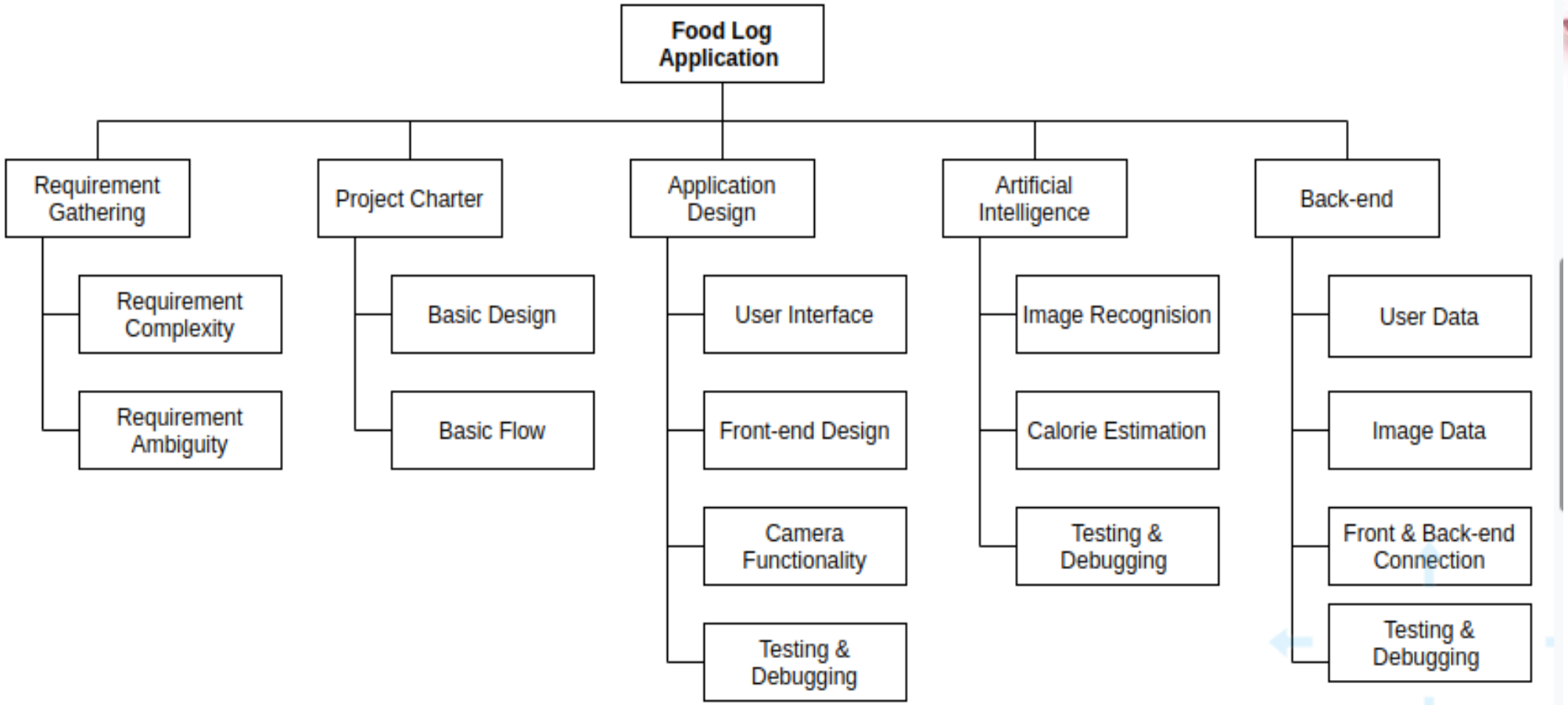
uOttawa

Roles and Responsibility

uOttawa


Food Log Application Resources
Project Management Team
Project Design Team
Project Programming Team
Back-end
Deals with Customer
Reports Status of the Project
Reports Risks and Manage Communication
User Interface
Front-end Design
Camera Functionality
Image Recognision
Calorie Estimation
Testing & Debugging
User Data
Image Data
Front & Back-end Connection
Testing & Debugging

Work Breakdown Structure


Food Log Application
Requirement Gathering
Requirement Complexity
Requirement Ambiguity
Project Charter
Basic Design
Basic Flow
Application Design
User Interface
Front-end Design
Camera Functionality
Testing & Debugging
Artificial Intelligence
Image Recognision
Calorie Estimation
Testing & Debugging
Back-end
User Data
Image Data
Front & Back-end Connection
Testing & Debugging

Schedule Allocation

Deliverables after each phase	Timeline	Description
Front-end Design	1/11/2019-12/12/2019	Front end (User Interface Design) including menu
Camera Functionality	12/12/2019-2/1/2020	Camera function to click picture of food
Image Recognition	26/3/2020-6/5/2020	Artificial intelligence to recognize food image
Weight & Calorie Estimation	6/5/2020-28/7/2020	AI methods for calorie and weight estimation
Backend User and Image Dataset	31/8/2020-6/11/2020	Interacting with AWS for user & image dataset
Frontend & Backend Communication	6/11/2020-1/1/2020	Connecting frontend & backend
Documentation	26/2/2021-26/3/2021	Documentation includes readme file
Deployment	26/3/2021-9/4/2021	Final deployment (delivery of project)

Project Management Tool

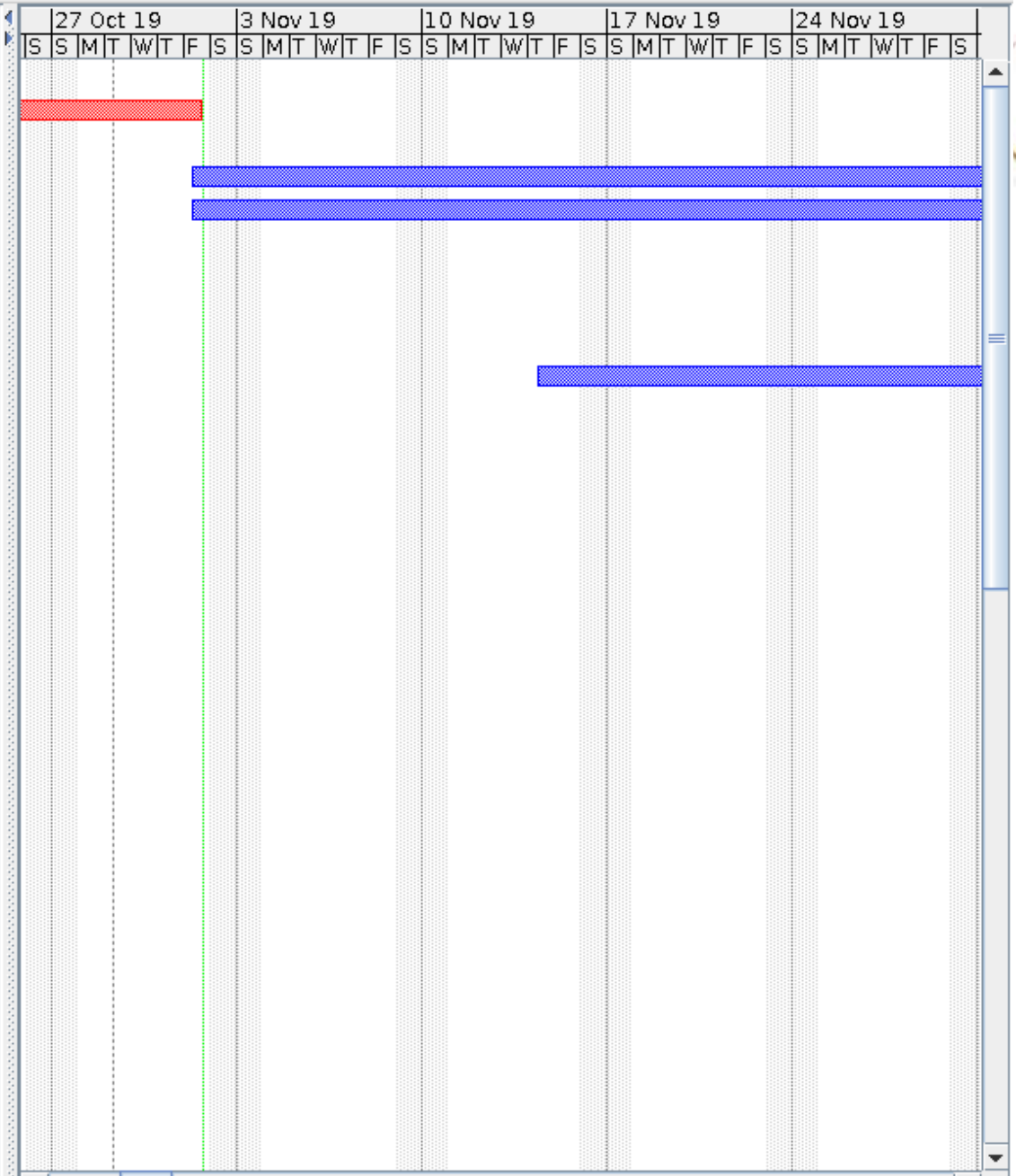
•We have depicted the schedule of our project using a free and open source project management tool: **OpenProj**

•Proper schedule has been built using this tool and several charts has been created like Work breakdown structure, Gantt Chart, Resource Allocation chart and many more.

OPENPROJ File Edit View Insert Tools Project Help

No Filter | No Sorting | No Group

		Name	Duration	Start	Finish
1		Requirement Gathering	20 days	10/9/19 8:00 AM	7/10/19 5:00 PM
2		Project Charter	20 days	7/10/19 8:00 AM	1/11/19 5:00 PM
3		Application Design	105 days	1/11/19 8:00 AM	26/3/20 5:00 PM
4		Front-end Implementation	30 days	1/11/19 8:00 AM	12/12/19 5:00 PM
5		Camera Functionality	15 days	12/12/19 9:00 AM	2/1/20 9:00 AM
6		Testing the code	30 days	2/1/20 9:00 AM	13/2/20 9:00 AM
7		Debugging the Issues	30 days	13/2/20 9:00 AM	26/3/20 9:00 AM
8		Artificial Intelligence	207 days	14/11/19 9:00 AM	31/8/20 9:00 AM
9		Image Recognision	30 days	26/3/20 8:00 AM	6/5/20 5:00 PM
10		Calorie Estimation	60 days	6/5/20 8:00 AM	28/7/20 5:00 PM
11		Testing	25 days	28/7/20 8:00 AM	31/8/20 5:00 PM
12		Backend Implementation	130 days	31/8/20 8:00 AM	26/2/21 5:00 PM
13		User data and Image data set	50 days	31/8/20 8:00 AM	6/11/20 5:00 PM
14		Front & Back-end communication	40 days	6/11/20 9:00 AM	1/1/21 9:00 AM
15		Testing	40 days	1/1/21 9:00 AM	26/2/21 9:00 AM
16		Documentation	20 days	26/2/21 9:00 AM	26/3/21 9:00 AM
17		Deployment	11 days	26/3/21 8:00 AM	9/4/21 5:00 PM



Resource Allocation

uOttawa

OPENPROJ File Edit View Insert Tools Project Help

No Filter | No Sorting | No Group

		Name	Duration	Start	Finish	...	Resource Names
1		Requirement Gathering	20 days	10/9/19 8:00 AM	7/10/19 5:00 PM		
2		Project Charter	20 days	7/10/19 8:00 AM	1/11/19 5:00 PM		
3		Application Design	105 days	1/11/19 8:00 AM	26/3/20 5:00 PM		UI Designers
4		Front-end Implementation	30 days	1/11/19 8:00 AM	12/12/19 5:00 PM		
5		Camera Functionality	15 days	12/12/19 9:00 AM	2/1/20 9:00 AM		
6		Testing the code	30 days	2/1/20 9:00 AM	13/2/20 9:00 AM		Testers
7		Debugging the Issues	30 days	13/2/20 9:00 AM	26/3/20 9:00 AM		Debuggers
8		Artificial Intelligence	207 days	14/11/19 9:00 AM	31/8/20 9:00 AM		AI Developers
9		Image Recognision	30 days	26/3/20 8:00 AM	6/5/20 5:00 PM		
10		Calorie Estimation	60 days	6/5/20 8:00 AM	28/7/20 5:00 PM		
11		Testing & Debuggging	12.5 days	28/7/20 8:00 AM	13/8/20 1:00 PM		Debuggers;Testers
12		Backend Implementation	130 days	31/8/20 8:00 AM	26/2/21 5:00 PM		Backend Team
13		User data and Image data set	50 days	31/8/20 8:00 AM	6/11/20 5:00 PM		
14		Front & Back-end communication	40 days	6/11/20 9:00 AM	1/1/21 9:00 AM		
15		Testing & Debugging	20 days	1/1/21 9:00 AM	29/1/21 9:00 AM		Debuggers;Testers
16		Documentation	20 days	26/2/21 9:00 AM	26/3/21 9:00 AM		Technical Writer
17		Deployment	11 days	26/3/21 8:00 AM	9/4/21 5:00 PM		QA Team

Budget Allocation

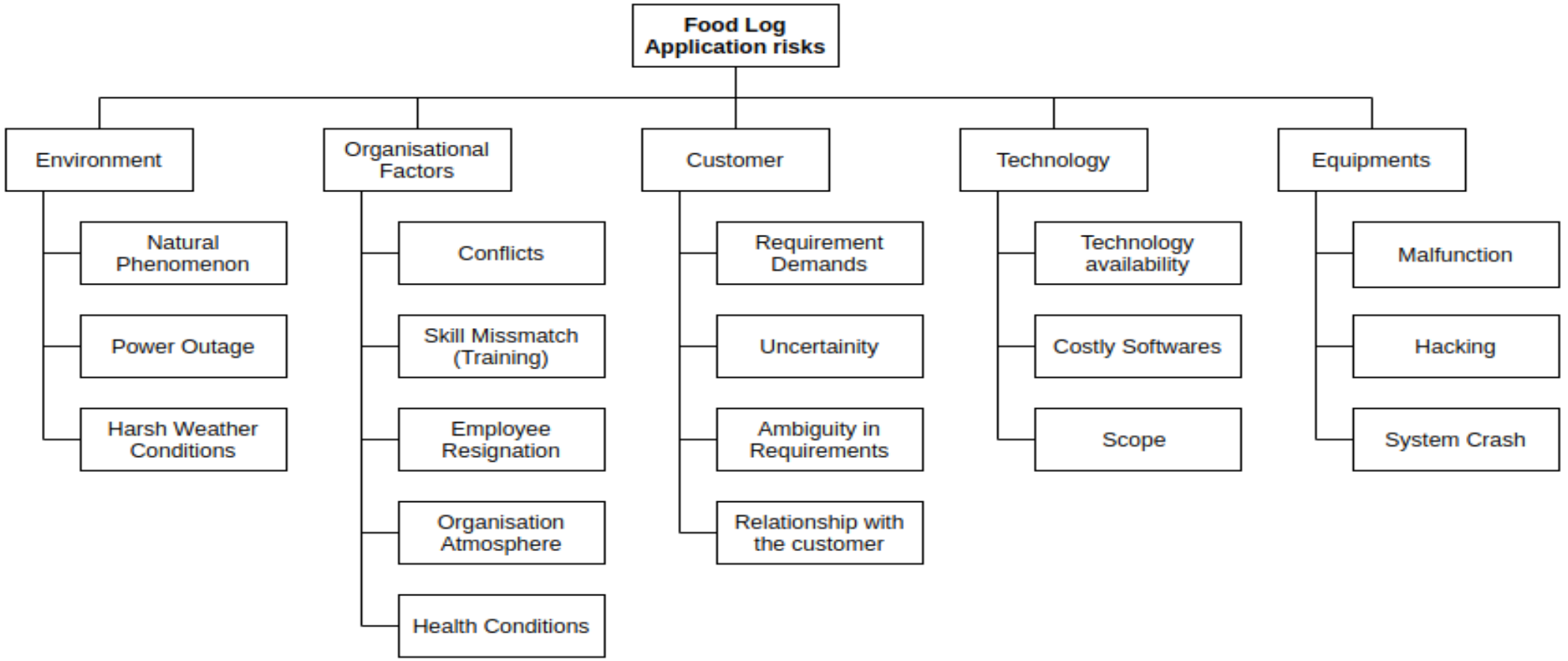
Requirement	Description	Cost (In CAD)
Project Manager	Managing Project	98000 (per year)
Google Play Services	For uploading Application on Android Platform	25 (Registration fee)
Apple App Store	For uploading Application on IOS Platform	99 (Per year)
Server (Cloud)	Amazon Web Services	403750
AI Programmers (Model Training)	Coding time	379,246
Testing	Human Effort	190,000
Backend (Data Collection)	Human Effort	253,333
Quality Assurance Analyst	Human Effort	159,916
Documentation Writer	For all the documentation purpose	17 (per hour)

•The total time duration for completion of this project will be 1 year 7 months.

•The total Budget estimated based on different activities is: 1,486,129 (CAD)

Risk Management

Risk Analysis



uOttawa

Risk	Consequence	Probability of Occurrence	Impact	Mitigation Methods
Bugs	Code not working properly	1	5	To understand the code first before writing it. Moreover, to check it after completion of every phase.
Miscommunicated Objectives	Requirements not met	1	5	Communication amongst team members during meetings. Also, by organizing meet ups at regular intervals.
System Crash	Rework	2	4	Taking backup of the work side by side. Using version control systems to save different versions of the code.
Training	Extra time to train employees	2	4	To involve under skilled employees from the start so that they would learn from the experienced developers. Also, so that they would know the flow from the starting.
Employee Health	Extra time to complete that particular phase or else over time	3	4	Work will be divided amongst employees so that in worst situation other developer could continue the work.

Tools and Technologies

uOttawa

Tools Used:

•OpenProj (A project management tool), Android Studio (For coding purpose), Git (Version Control System), LaTeX (Documentation), Open source tools for reporting purpose eg: Orange

Programming Languages Used:

•Java, Android, C Sharp for Android and IOS application, Python for Artificial Intelligence, MySQL for database

Infrastructure:

•Amazon Web Services Server

Libraries & methods Used:

•TensorFlow, Keras , Deep Learning Algorithms, Image Processing, Convolutional Computer Network

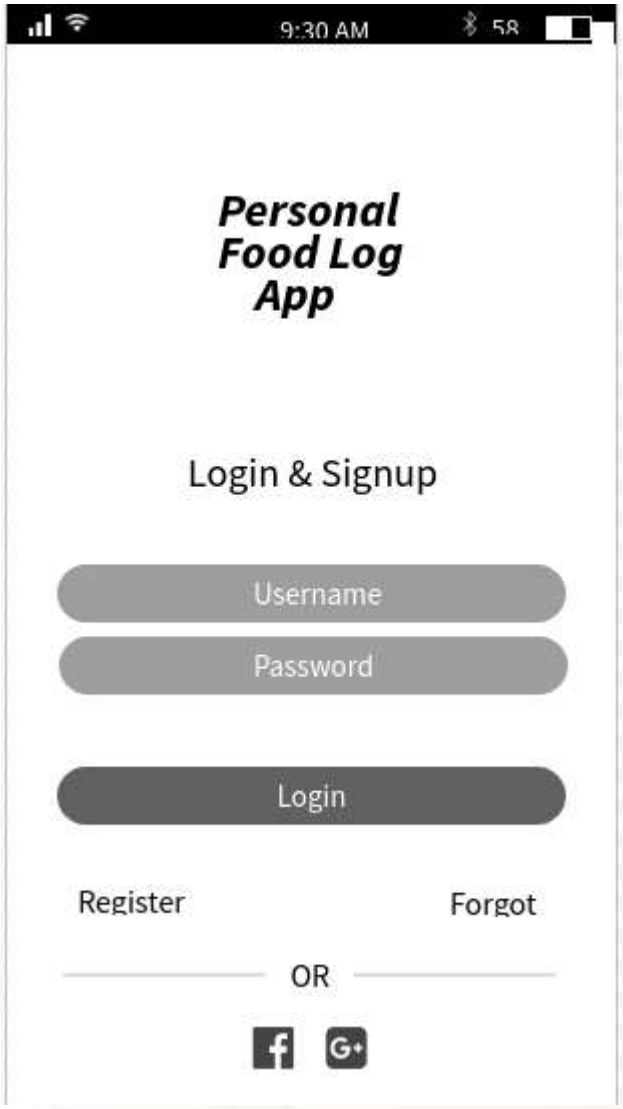
DEMO

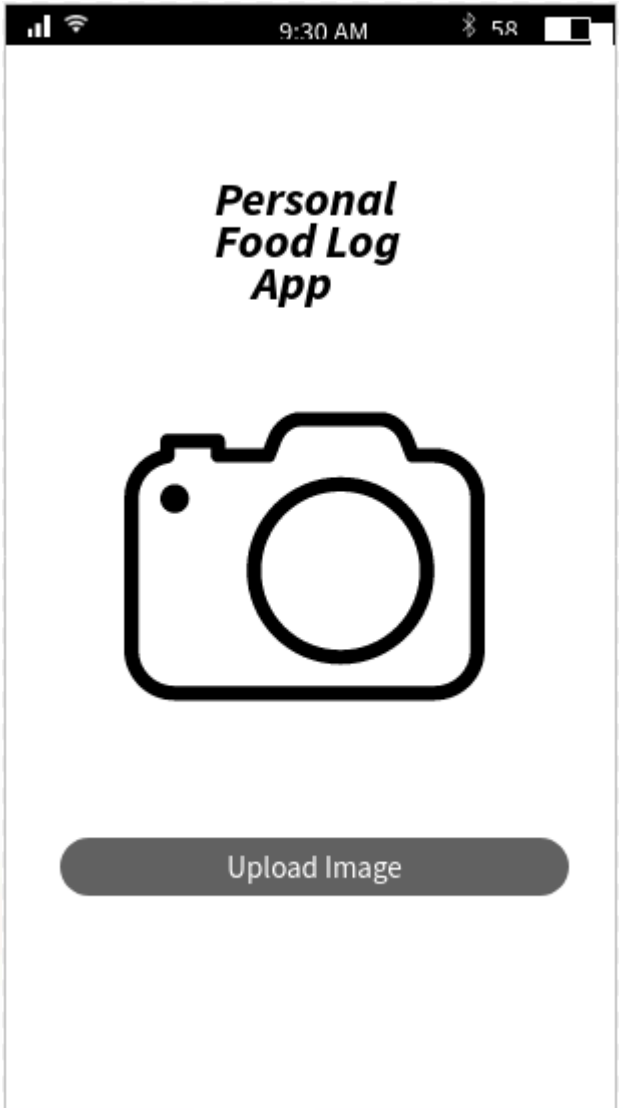
uOttawa

User Interface Prototype

•For prototyping purpose, we have used Mockflow Platform. It is a cloud-based software which allows to design prototype

•It provides a large library of mockup components, icons, stickers, and other shapesn to build interfaces.


9:30 AM
58
Personal Food Log App
Login & Signup
Username
Password
Login
Register
Forgot
OR

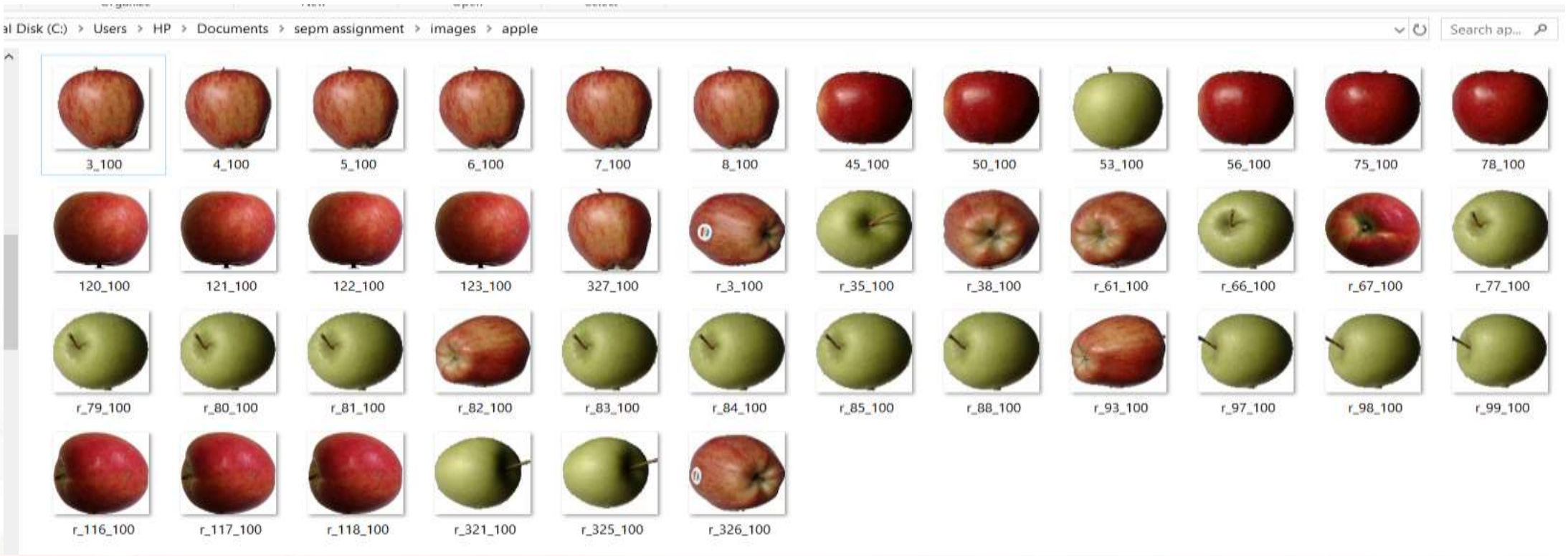

9:30 AM
58
Personal Food Log App
Upload Image

uOttawa


9:30 AM
Personal Food Log App
Food Item: Item Name
Calorie: Calorie Intake
Try Another

Food Recognition Model

Training Images



uOttawa

Food Recognition Model

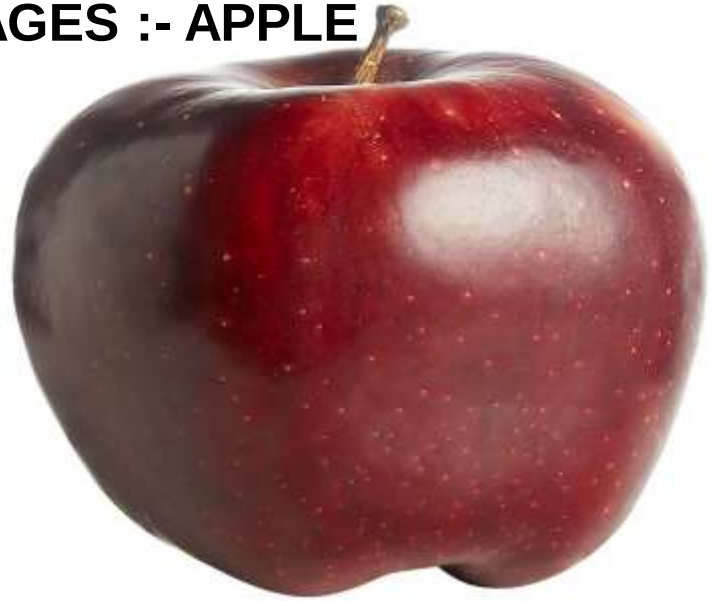
Testing Images




Food Recognition Model

Output

PREDICTED IMAGES :- APPLE



uOttawa

Food Recognition Model

Output

PREDICTED IMAGE :-
ORANGE

THANK YOU

uOttawa