AMERICAN INTERNATIONAL UNIVERSITY-BANGLADESH (AIUB)

Report on

Software Development Project Management (SDPM)

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Abstract

The food cycle is a system that basically, works for the waste food issue and makes a food chain. It explores how the system can tackle food waste and hunger by collecting extra food from households, restaurants, and bakery shops and delivering it to those who need it. Collaborative efforts, technology, and education work together to make sure less food goes to waste while helping people. This approach offers a way to be kind to the environment and make sure everyone has enough to eat also it serves food to the street animal. This system can also be helpful for organizations those who are works on hunger issues as well as works for animals this project can reduce their time and cost.

Team Contributions

The individual specific contribution of each team members are presented in Table 1 below:

Table 1: Project Team Members Contributions

ID	Name	Specific Contribution
20-42366-1	Hoq, Md Nafijul	1. Abstract 2. Software Development Project Management Plan 3. Project Schedule (Time) 4. Budget Estimation (Cost) 5. Resource Management 6. Project Management Tools 7. Software Tools Required for Software Development 8. Conclusions
20-42678-1	Yamlick, Abdullah	1. Project Overview 2. Project Challenges 3. Project Objective 4. Project Scope 5. Project Deliverable 6. Project Size 7. Project Milestones 8. Risk Management 9. Quality Management

1 Project Overview

Food waste is the intentional discarding of edible items. Mainly by retailers and consumers about 1.3 billion tons of food is wasted globally per year. This is about one-third of all food being produced for human consumption. This waste food can fulfill 3 billion people's needs. Again, this wasted food destroys the ecological balance. So, if consumer and retailer can deliver their wasted food to the needy people it can remove the hunger and this problem can be solved and reduced. The root of this problem is that the food is not eaten. It happens during production, processing, distribution retail, and food service sales and consumption. This problem is important because of needy people and keeps our environment fresh. Wasted food will be stored in a booth and an organization will collect them and distribute them through the website to needy people and animals. We will build a website to solve the problem. Food is wasted all over around if we create a properly organized system then the problem might be solved. There are lots of NGOs that work with food which can save their time and also money as well. The basic functionalities are there a login function to food donors and collectors on both sides. On the donor side, there will be two types of food categories one is for humans and one for animals. There will also be quantity functionalities, A suggestion box, and a submit button. Two types of donor restaurants and homeowners on the other hand admin side, there will have a food quantities calculator. If store enough food, then informs their worker to collect food. The worker can log in and can see the order from the admin. Admin also contacts with locality informer that where the foods necessary. Locality informer can log in and informs their locality of food necessities. Also, everyone can log out of the system. It will provide food for needy people and needy animals and also it will keep the environment clean. The target group of users is lots of organizers who work for food. They should benefit because it will be a smart and first system and also it will save a lot of o money and will save wasted food that makes a bad impact on the environment. According to the age of the modern era, where we are developed through artificial intelligence, people are more dependent on smartphones. There are different applications, which are developed to control the wastage of food, and it gives the opportunity to send that extra food to the people who need it. There are many applications that control food waste. 'Mobile phone Based Waste Food Supply Chain for Aurangabad Using GIS Location-Based and Google Web Services', published in 2014, combine the client-server GIS and mobile application to make a craving-free city. The application for the client side gives the option to donate food to people in demand Implementing a software project that involves collecting extra food from households and restaurants.

2 Project Challenges

1. Logistics and Coordination: It can be challenging to plan for the collection, delivery, and distribution of food from diverse sources to beneficiaries. It calls for effective logistics management, which includes planning, route optimization, and making sure pickups and deliveries happen on schedule.

2. Food Safety and Quality: It is essential to make sure that the food obtained satisfies safety and quality requirements. To avoid infection and ensure freshness, food items must be handled, stored, and transported properly. Complying with rules and guidelines for food safety adds still another level of complexity.

3. Technology Infrastructure: It can be difficult to set up a reliable and expandable technology infrastructure to support the software system. This includes a platform that is user-friendly, integrating it with current systems or databases, and managing large amounts of data.

4. Privacy and data security: Strong privacy and data security safeguards are needed when handling user

data, such as personal data and information on food donations. It is essential to protect sensitive information by putting in place the proper security measures, data encryption, and access controls.

5. Collaboration Among Stakeholders: For the project to be successful, there must be cooperation and coordination among a variety of stakeholders, including households, restaurants, collecting agencies, and beneficiary organizations. Effective communication and strong partnership are essential for a successful project.

6. Public perception and trust: Achieving public trust is one of the major challenges of this project. overcoming any stigmas or misconceptions associated with food donation and distribution initiatives can be a challenge. Establishing a positive reputation also promoting transparency and building public awareness of why, they donate their extra food are important for project success.

7. Reason for this system: There is a lot of literature on this topic but our system will collect food from the root also it will collect dusty food for animals and distribute it to needy people where it is actually needed. It will also connect with the locality which is the main feature. There is software like a food waste management system. They collect food and distribute it to the needy but our software has the flexibility to collect food from door to door and also from restaurants and connectivity with the locality also it is a combined package they can provide humans as well as animals.

3 Software Development Project Management Plan

1. Firstly, we will define the project scope by clearly stating the goals and objectives of the project and listing out the key features and functionalities that will be included in the software.

2. Next, we will develop a detailed outline of the development approach, timelines, and resources required to complete the project.

3. We will establish a project team consisting of developers, a project manager, and a quality assurance specialist who will be responsible for executing the project plan.

4. To track progress, assign tasks, and communicate updates in real-time, we will set up a project management tool such as ClickUP, Asana.

5. We will prioritize features and functionalities based on their criticality to the success of the project.

6. We will conduct regular project meetings to review progress, identify issues, and make decisions as needed.

7. We will monitor project risks such as delays in development or changes in user requirements, and implement risk mitigation strategies as needed.

8. We will implement quality assurance measures to ensure that the Food Cycle software meets all functional and non-functional requirements through rigorous testing and ongoing quality assurance throughout the development process.

9. Finally, We will communicate project updates regularly to stakeholders through email, meetings, and status reports, to ensure that everyone is informed and engaged throughout the development process.

4 Project Objective

The objectives of this projects are:

1. To build a sustainable system that reduces waste food.
2. To reduce hunger issues.
3. To keep our environment safe.

5 Project Scope

This project will involve the development and implementation of a user-friendly software solution for efficient food collection scheduling, real-time communication, and data tracking. Collaborative partnerships will be established with local restaurants, supermarkets, and charitable organizations to facilitate food donation and distribution. Health and safety protocols will ensure safe food handling, and educational initiatives will raise awareness about responsible consumption. The project's scope also includes resource management, continuous improvement through feedback loops, and the creation of comprehensive documentation and reporting mechanisms. The project aims to address both food waste and food insecurity while fostering a sense of community responsibility and environmental stewardship.

6 Project Deliverable

1. Project requirements document.
2. Project management plan documents.
3. Design documents.
4. Source Code.
5. Testing Plan and Test Results.
6. Partnership agreements.
7. Training materials.
8. Health and safety protocol.
9. Maintenance and support plan.

7 Project Size

Basically, there are 3 sizes of projects small, large, and medium. Our project will be medium. It is more complex and should require a larger team because there will be lots of functionality that will increase complexity. Also, medium size projects can take several months to a year to complete. Project timeline 4 months.

8 Project Management Tools

List of project management tools needed to be used for this project management are-

1. ClickUp.
2. Asana.
3. monday.com.

9 Software Tools Required for Software Development

1. For coding, debugging and testing we will use visual studio IDE.
2. For collaboration with developers, we will use Git-hub.
3. For collaboration and communication, we will use google meet.
4. For automated test we will use selenium.
5. For the database management system we will use MySQL.
6. For documentation we will use google docs.
7. For designing and wireframing we will use Figma.

10 Project Milestones

A project milestone is a noteworthy occasion or accomplishment that marks an important turning point in the project's development. The project's progress is tracked and measured using milestones, and these measurements help to make sure the project is on track and accomplishing its goals. They act as significant checkpoints that assist stakeholders and project managers in evaluating the overall condition and advancement of the project.

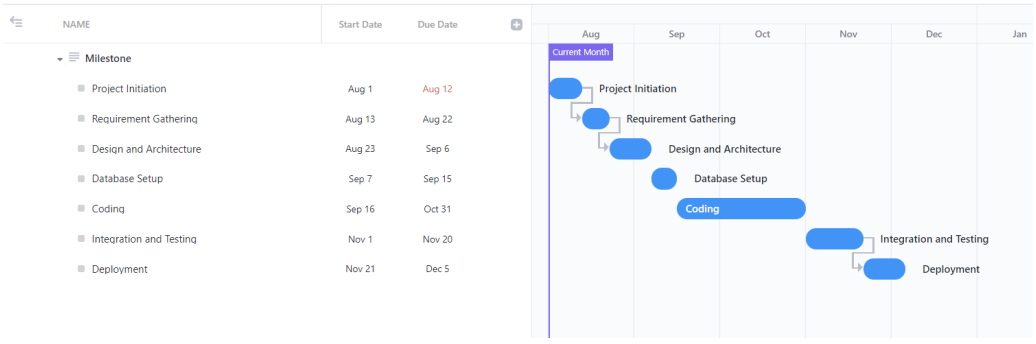

Figure 1: Project Milestone Gantt Chart

11 Project Schedule (Time)

Project schedule refers to the plan that outlines the tasks, activities, and milestones that need to be completed in order to achieve the project goals within a specific time frame.It typically includes a timeline, start and end dates for each task, and dependencies between tasks. The project schedule helps the project team to stay organized, manage resources efficiently, and monitor progress against deadlines. It also enables

stakeholders to understand the timeline of the project and anticipate any potential delays or issues that may arise. Effective project scheduling is crucial for ensuring that the project is completed on time and within budget.

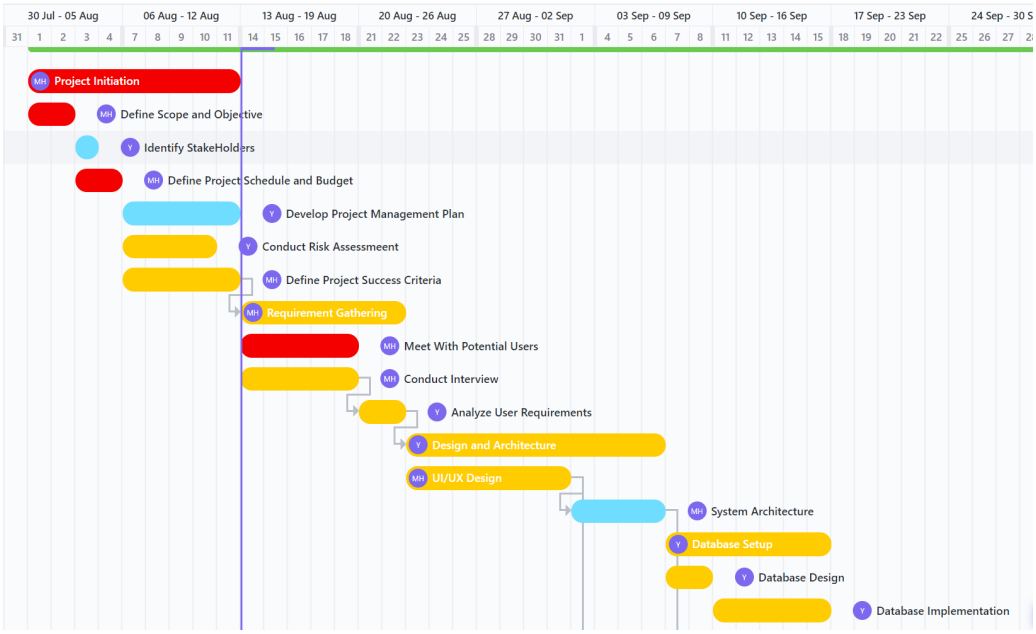

Figure 2: Project Timeline Gantt Chart-1

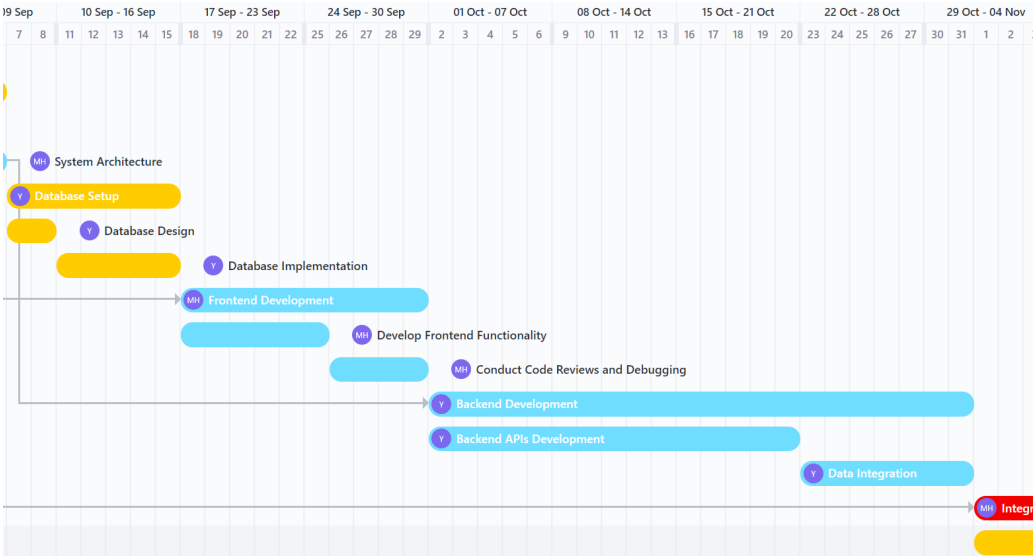

Figure 3: Project Timeline Gantt Chart-2

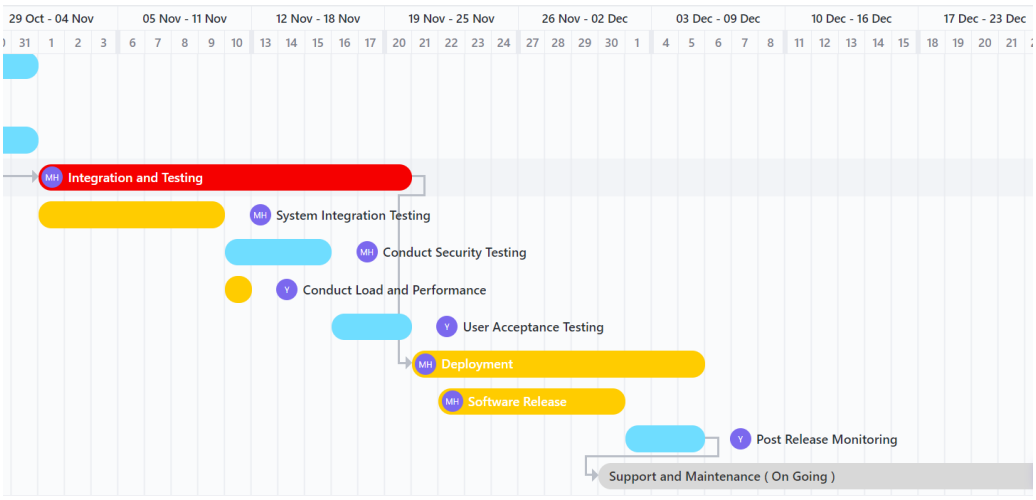

Figure 4: Project Timeline Gantt Chart-3

12 Budget Estimation (Cost)

Budget estimation involves determining the estimated costs of all the resources required to complete the project successfully. This includes calculating the costs of materials, equipment, labor, and any other expenses that may arise during the project's life cycle. It is essential to create an accurate budget estimate to ensure that the project stays within its financial limits and avoid unexpected costs. This estimation process should be done carefully and reviewed regularly throughout the project's life cycle to adjust the budget as necessary.

Task name	Budgeted Cost	Actual Cost	Remaining	Catagory	Fixed/Variable Cost
Salary Bill 7					
Project Manager	$3,000	$3,000	$0	Personal	Fixed
Business Analyst	$2,500	$2,500	$0	Personal	Fixed
Software Developer	$6,000	$6,000	$0	Personal	Fixed
Database Administrator	$1,500	$1,500	$0	Personal	Fixed
UI/UX Designer	$1,000	$1,000	$0	Personal	Fixed
Quality Assurance Engineer	$1,000	$1,000	$0	Personal	Fixed
Support and Maintenance Staff	$2,000	$2,000	$0	Personal	Fixed

Figure 5: Budget Estimsation-1

Task name	Budgeted Cost	Actual Cost	Remaining	Catagory	Fixed/Variable Cost
Software and Hardware Expense 3					
Software Tools and License	$5,500	$5,000	$500	Software and Har...	Variable
Server Hosting	$2,300	$2,000	$300	Software and Har...	Variable
Hardware	$18,000	$15,000	$3,000	Software and Har...	Variable
Training 2					
Donor Training	$700	$500	$200	Others	Variable
Worker Training	$700	$500	$200	Others	Variable

Figure 6: Budget Estimsation-2

Task name	Budgeted Cost	Actual Cost	Remaining	Catagory	Fixed/Variable Cost
Utilities 5					
Rent	$1,000	$1,000	$0	Utility Cost	Fixed
Transportation Cost	$700	$550	$150	Utility Cost	Variable
Electricity	$2,000	$1,700	$300	Utility Cost	Variable
Internet Bill	$2,300	$2,000	$300	Utility Cost	Variable
Snacks	$700	$500	$200	Utility Cost	Variable
Add task...	SUM $50,900	SUM $45,750	SUM $5,150		

Figure 7: Budget Estimsation-3

13 Risk Management

Risk management is a critical component of any project. It involves identifying, assessing, and mitigating potential risks that could impact the success of the project. This process requires a systematic approach to ensure that all risks are properly identified and addressed.Risk management should be an ongoing process throughout the project, with regular reviews and updates to the risk management plan. It is important to track risks, monitor their status, and adjust strategies as necessary.

Risk Management

Risk Management + NEW TASK

HIGH 6 TASKS	ASSIGNEE	CATAGORY	VALUE LABEL	RISK LABEL	PRIORITY LABEL
Food Safety Concern	MH	Organization	High Value	High Risk	HIGH
Stakeholder Engagement	Y	Donor	High Value	High Risk	HIGH
Over Budget	MH	Employee	High Value	High Risk	HIGH
Unpredictable Food Supply	Y	Donor	Low Value	High Risk	HIGH
Team members leaving	MH	Project Manager	Low Value	High Risk	HIGH
Failure Objective	Y	Organization	High Value	High Risk	HIGH

Figure 8: Risk Management-1

MEDIUM 5 TASKS	ASSIGNEE	CATAGORY	VALUE LABEL	RISK LABEL	PRIORITY LABEL
Logistical Challenges	MH	Distributor	Low Value	Low Risk	MEDIUM
Resource Shortest	Y	Organization	Low Value	Low Risk	MEDIUM
Community Acceptance	Y	Organization	Low Value	High Risk	MEDIUM
Deadline Over	MH	Employee	Low Value	High Risk	MEDIUM
Environmental Impact	Y	Organization	High Value	Low Risk	MEDIUM

Figure 9: Risk Management-2

LOW 2 TASKS	ASSIGNEE	CATAGORY	VALUE LABEL	RISK LABEL	PRIORITY LABEL
Technology and Infrastructure	Y	Organization	Low Value	High Risk	LOW
Technical Issue	MH	Organization	Low Value	High Risk	LOW

Figure 10: Risk Management-3

14 Resource Management

Resource management is the process of planning, allocating, and utilizing resources effectively to achieve project goals. In the context of our project resource management would involve identifying the required resources and determining how they will be allocated and utilized throughout the project's life cycle. Effective resource management ensures that the project team has the necessary resources to complete tasks on schedule and within budget. It also involves monitoring resource utilization and making adjustments as needed to ensure that resources are allocated efficiently and effectively. The ultimate goal of resource management is to optimize resource allocation to ensure that the project is completed successfully, on time, and within budget.

Resource Management

Item	Team Members	Progress	Duration	Software Resource	Hardware Resource
Project Initiation	Project Manager	Complete	Aug 1 - 12	ClickUp, Asana, Canva etc	Computers and Laptops
Requirement Gathering	Business Analyst	Complete	Aug 13 - 22	ClickUp, Asana, Google Drive etc	Interactive Whiteboards, Computers
Design and Architecture	UI/UX Designer	Complete	Aug 23 - Sep 6	Microsoft Visio, SketchUp, Adobe XD etc	Computers and Workstations
Database Setup	Database Developer	In Progress	Sep 7 - 15	MySQL, Oracle Database, Git etc	Database Server, Storage, Ram
Frontend Development	UI/UX Designer	In Progress	Sep 16 - 30	Adobe XD, Skectch, Angular, Bootstrap etc	VR Device, Networking Equipment, ...
Backend Development	Programmers	In Progress	Oct 1 - 31	Visual Studio Code, Git, PyCharm, Node.js ...	Version Control Device, Debugging ...
Integration and Testing	Various Team Memb...	In Progress	Nov 1 - 20	Cypress, Mocha, BrowserStack, Jenkins etc	Test Environment, Computers
Deployment	Project Manager	In Progress	Nov 21 - Dec 5	Travis CI	Production Servers, Deployment Ha...
+ Add Item					
			Aug 1 - Dec 5		

Figure 11: Resource Management

15 Quality Management

Quality management is an important aspect of any project that involves the exchange of used products. It involves ensuring that all products that are exchanged meet the required standards of quality, functionality, and safety. To achieve this, quality management involves the use of various techniques and processes, including quality planning, quality control, and quality assurance.

Task name	Priority	STATUS	STAGE	PROGRESS	MITIGATE COST
Implement Quality Control Measures	High	APPROVED	Major	100%	$3,000
Develop Quality Standards	Low	APPROVED	Major	33%	$5,000
Define Quality Objectives	Normal	APPROVED	Major	33%	$2,000
Perform User Acceptance Testing	High	PENDING AP...	Minor	67%	$2,500
Monitor and Analyze Quality Metrics	High	REJECTED	Minor	33%	$4,000
Add task...				SUM	$16,500

Figure 12: Quality Management

16 Conclusions

This project is all about distributing uneaten food to needy people those who can not afford their daily food as well as this project has a desire to provide food to street animals. This is a complete system so there will be lots of functionality, also it will ensure maximum quality so provide lots of time for testing as well. Proper scheduling and budgeting will ensure business success. It will so much help and it will also save lots of money for organizations that work for food and hunger.