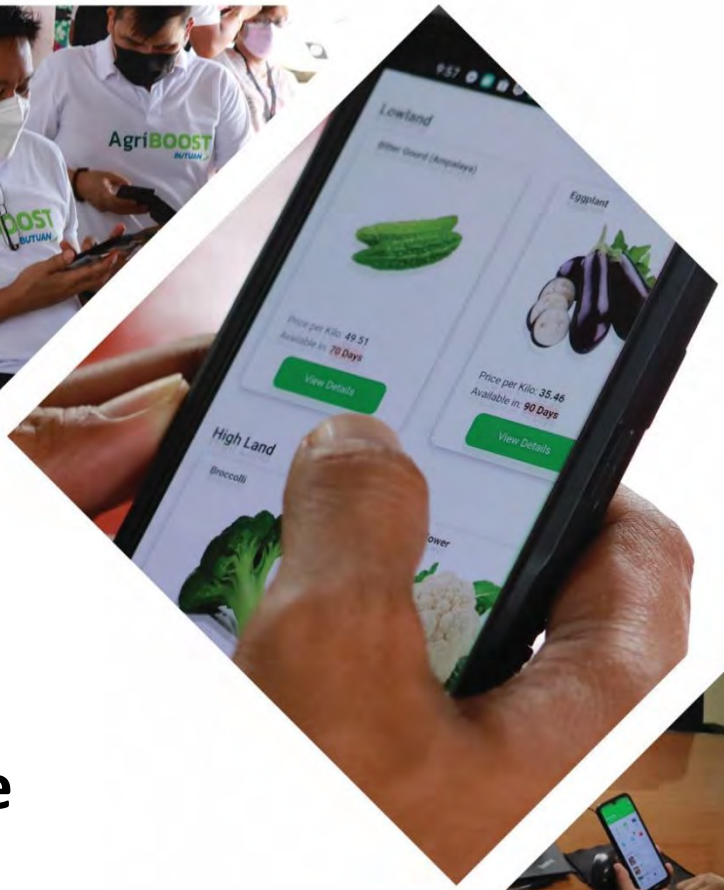
AgriBOOST BUTUAN



Design, Core Development and Testing of Enterprise Resource Planner (ERP)

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CHAPTER 1: INTRODUCTION

Executive Summary

The Local Government Unit of Butuan City, Philippines launched AgriBOOST, an agri-business innovation to boost local farmer capacities and catalyze market forces for a sustainable, food secure and vibrant community. AgriBOOST has four components – AgriBloom, AgriMArt, AgriHub and AgriComm.

The Enterprise Resource Planner (ERP) system is the digital backbone of the AgriHub. The ERP synergizes the important components of the AgriBOOST value chain ecosystem. It enables the AgriHub to connect farmers to its end consumers, provide price prediction models linked to farmers' planning of production, and monitor the supply and demand of vegetable produce in Butuan City.

The ERP System uses the most relevant applications of the latest IT techniques to establish a catalytic mechanism for price risk management and orchestrates stakeholder engagement (Agrihub); enable collaborative planning and decision making among value chain actors; and improve the system of backward and forward linkages of resource and market accessibility of the vegetable sector.

Key actors of the agricultural value chain in Butuan City such as the farmers, the AgriHub and the traders were involved in the project which led to the development of the four (4) modules: the User Registration Module for Farmers and Consumers, the AgriHub Data Management Module; the Farmer Planting and Monitoring Module; and the Trader Order Management Module.

The ERP is accessible through mobile phones with android platform which has wireless connection to communicate with the server. The web application managed by the AgriHub Administrator will generate daily, weekly or monthly reports about Inventory levels, supply and demand forecast. The administrator also provides weather forecast to farmers. To accomplish the overall tasks, this project will use latest version of Android Studio, SDK and Laravel 8 an MVC framework and VueJS to develop the frontend and backend of the web application and cater the API calls for the mobile app and use MySQL and SQLite3 database. However, the ERP system is limited to the four modules. It can be expanded to support Advanced Data Analytics for cost of production analysis, price prediction modelling, impact analysis, and GIS farm mapping.

Several user testings, sprint meetings, and design thinking seminars were conducted to reach a good level of synergy and to obtain comprehensive results. The project was also organized to achieve a sustainable technology and know-how transfer to the Farmers, the Traders, and the Local Government Unit, particularly through the involvement of the City Agriculture Office. From the technical point of view, the project was organized around a cloud-based platform on standard Web technologies, able to integrate the various software tools developed and to be replicated.

The project was started in August 2021 and finished in October 2021.

Expected Output

This project is funded by the United Nations Development Programme (UNDP). At the end of the project, a working Enterprise Resource Planning (ERP) system will be turned-over to the Butuan City LGU. The system shall have the following user-friendly modules:

1. User Registration (Farmers and Consumers)
2. AgriHub Data Management Module
3. Farmer Planting and Monitoring Module
4. Trader Order Management Module

After the successful conduct of User Acceptability Testing (UAT), Users Operation Manual will also be submitted. Personnel of the LGU will also be trained in operating and maintaining the ERP system as the AgriHub administrator. Annual trainings for the farmer and AgriHub Administrators will also be conducted.

Project Implementation Requirements

A team of web developers are engaged for the implementation of this project. The team used the following hardware equipment, software programming language and tools:

- Laptop
- Mobile Phones (Two)
- Hosting and Domain
- Jira Project Management
- Apple store and Google play deployment
- Twilio SMS API

CHAPTER 2: METHODOLOGY

Project Approach (Scrum Agile)

The following chart illustrates the approach used in the ERP Evaluation:

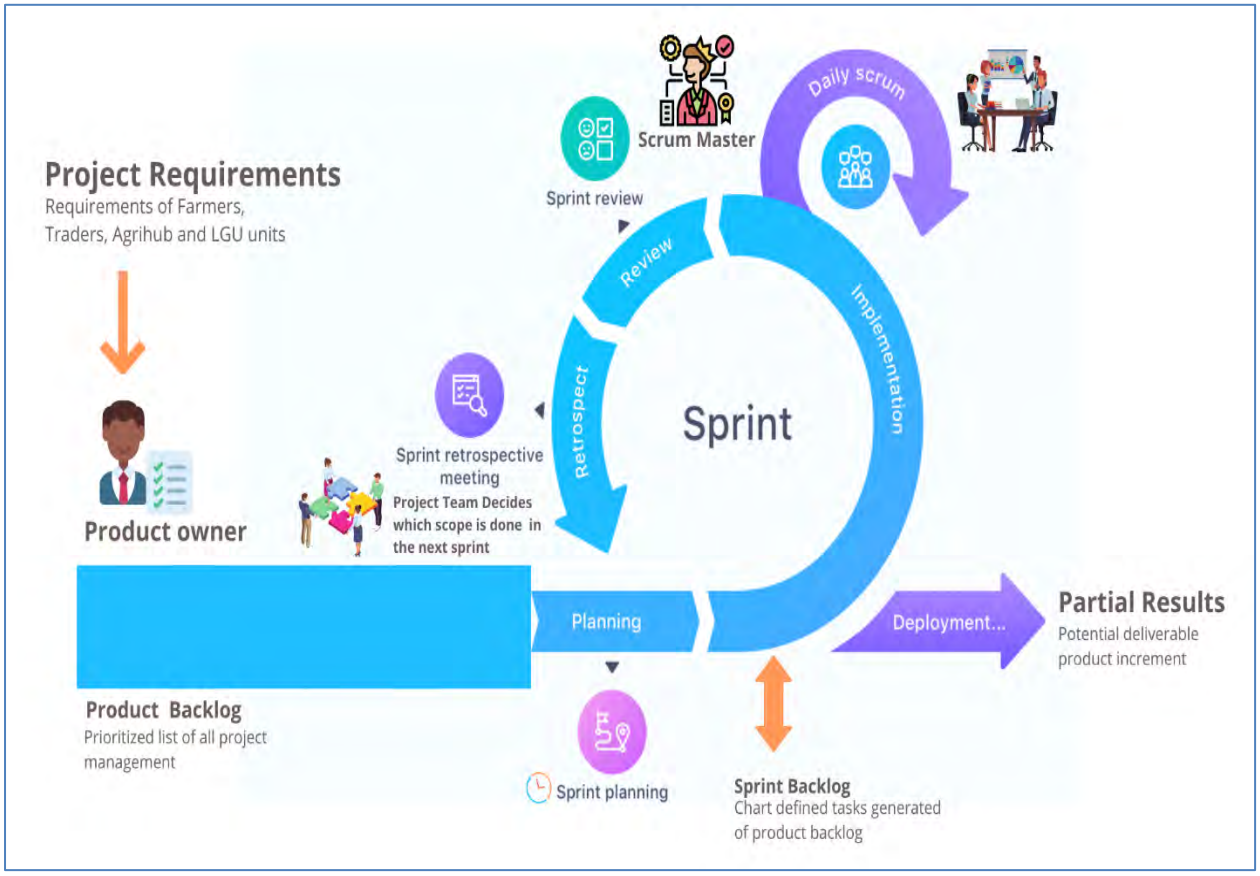


Figure 1. Scrum Agile Methodology

Planning

This phase consisted of processes including Creating User Stories, Approve, Estimate, and Committing User Stories, Creating Tasks, Estimating Tasks, and Creating Sprint Backlog. This phase determined the inputs that are needed to conceptualize the project. Data were collected from the CAO and the CTIIPO that contains farmers profile, agricultural trading activity, historical vegetable prices and consumer behavior and finalized the Software Requirements Specification (SRS) of the ERP system. In the requirement planning, project team gathered required data sets, user's profile, and other technical information in the form of oral interview, seminars and training from eAgri, CAO and CTIIPO (see Annex 3). Document analysis and observation of related studies and literatures also helped the team to process the data that were gathered. The team also conducted brainstorming and sprint session among the team members and core team which was a great help in exploring new ideas as well as finalizing the SRS of the ERP system and served as the input for user design and construction phase of the project.

On the user design, the project team utilized client centric design approach in creating the Use Case Diagram, Sequence Diagram, and Class Diagram of the system. This phase of the project was performed simultaneously with creation of the user journey and stories, seminars and trainings. The user journey indicated in the User Design phase was used in the construction phase to finally code, integrate and test the system. Also on this phase, the project team determined the Software tools (Android Studio, MySQL, SQLite3, Apache, PHP Framework (Laravel 8), VueJS, Bootstrap, JDK, Android SDK) for procurement needed by the project.

In order to plan, track, and manage this Project, the Team utilized Jira Software (see figure 2). Jira Software is a project management software that works with any agile model, including scrum. This software helped the team perform the deliverables with ease.

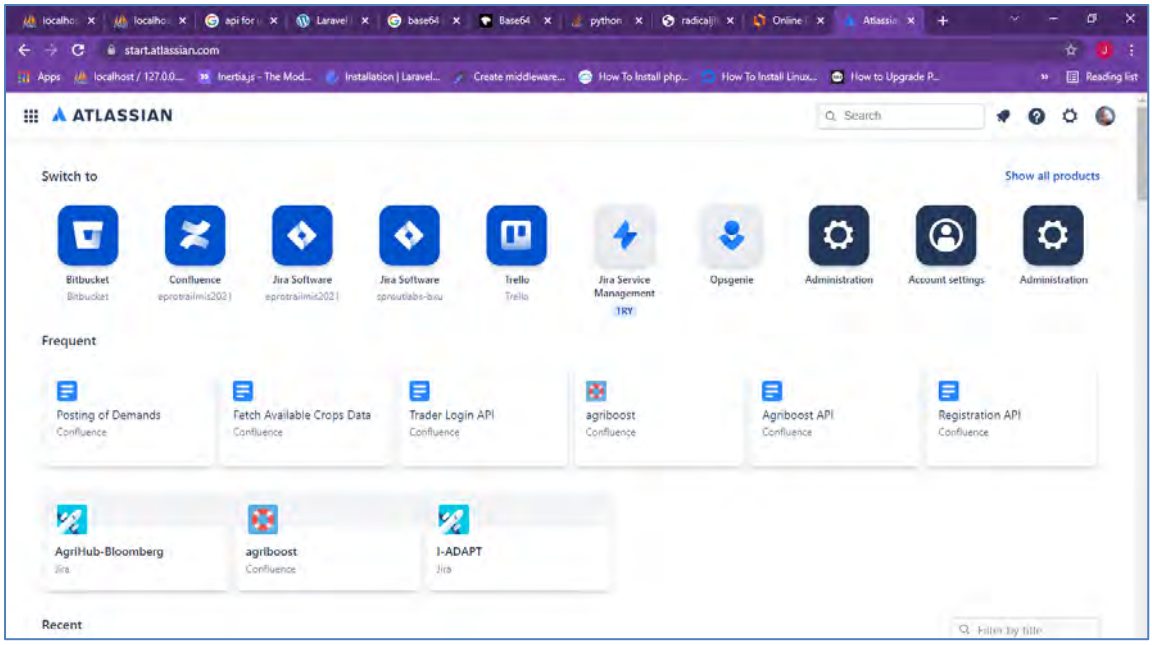


Figure 1.1. Jira Software Dashboard

Implementation

This phase was concerned with the completion of tasks and activities that result in the creation of the project's Minimum Viable Product. These tasks involve producing various deliverables, holding Daily Standup Meetings, and grooming (reviewing, fine-tuning, and frequently updating) the Product Backlog on a regular basis. The Scrum Team works on the items in the Sprint Backlog to generate Sprint Deliverables during this phase. A Scrum board (JIRA) is frequently used to keep track of the work and activities that are being completed. An Impediment Log might be used to track issues or problems encountered by the Scrum Team. Every day, a highly concentrated, time-boxed gathering known as the green bag Meeting is held. This was the place where the Scrum Team keep each other updated on their progress and any roadblocks they may be encountering. The Prioritized Product Backlog is updated and maintained on a regular basis. A Prioritized Product Backlog Review Meeting was convened to examine any adjustments or modifications to the backlog and incorporate them as needed into the Evaluated Sprint Backlog.

Review and Retrospect

This phase is focused on assessing the deliverables and completed work, and identifying ways to enhance the project work processes and techniques. Scrum Team members gathered for Scrum of Scrums (SoS) Meetings at predefined intervals or as needed to communicate and track their respective progress, obstacles, and dependencies across teams. In a Sprint Review Meeting, the Scrum Team shows the Core team and other key stakeholders the Sprint Deliverables. The goal was to obtain permission and acceptance from the Core team for the Sprint Deliverables. The Scrum Master and Scrum Team meet to review the Sprint's lessons learned. The data was saved as lessons learnt, which the team applied to future Sprints.

Deployment

This phase focused on providing the accepted deliverables to the Butuan City Bloomberg Core Team as well as recognizing, documenting, and internalizing the project lessons learned. Accepted Deliverables are provided or transferred to the appropriate stakeholders throughout this procedure. A formal Working Deliverables Agreement documents the Sprint's successful completion. Organizational stakeholders and Scrum Core Team members were gathered to review the operation and identify, document, and absorb the lessons gained throughout this phase, which concluded the project. These lessons frequently result mostly in recording of Approved Actionable Improvements to be applied in future project.

Project Timeline Gantt Chart

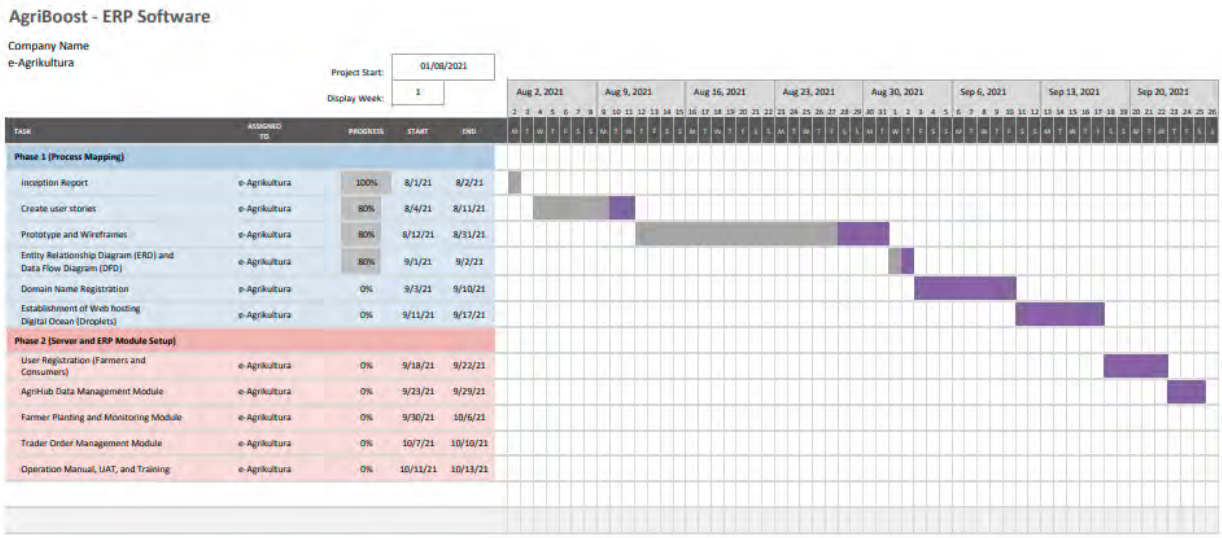


Figure 1.2 Project Timeline and Gantt Chart

CHAPTER 3: OUTPUT

Tasks carried out during the First Phase (Process Mapping)

Phase 1 (Process Mapping) – Development of business processes to optimize the system functionality without compromising efficiency and control.			
Deliverables	**No. of Days Delivered**	**Mode of Verification**	**Status**
Inception Report • Process, methodologies, timeline, and targets; • Detailed work and financial plan (i.e. Gantt Chart) for the creation of Prototype and Wireframes including timetable/schedule for each of the identified activities • Data / information needed to be generated and compiled. • Acquisition of JIRA all in one project management software.	1	Please see : • Figure 1 (Agile Scrum Methodology) • Figure 1.2 (Jira Dashboard) • Figure 1.3 (Project Timeline Gantt Chart) • Figure 2 (AgriBoost Process Flow) • Table 1 (Project Work Plan) • Figure 5 (User Persona of AgriHub Components)	. Completed
User Stories for the following value-chain actor: • Local vegetable farmers; • Modern and retail traders/Bulk buyers; • Agrihub Operator; • City Agriculture Office (CAgO);	5 days	Please see : • Figure 6 (AgriBloom User Story) • Figure 7 (AgriMart User Story) • Figure 8 (AgriHub User Story)	Completed
Prototype and Wireframes 1. Prototype and Wireframes per User Stories 2. Wireframes and Prototype Demo	7 days	Please see : • Figure 13 (AgriBloom Working Prototype and Wireframe) • Figure 13.1 (AgriBloom Working Prototype and Wireframe) • Figure 13.2 (AgriBloom Working Prototype and Wireframe) • Figure 13.3 (AgriBloom Working Prototype and	Completed

		Wireframe) • Figure 14 (AgriMart Working Prototype and Wireframe) • Figure 14.1 (AgriMart Working Prototype and Wireframe) • Figure 14.2 (AgriMart Working Prototype and Wireframe) • Figure 15 (AgriHub Working Prototype and Wireframe) • Figure 15.1 (AgriHub Working Prototype and Wireframe) • Figure 15.2 (AgriHub Working Prototype and Wireframe)	
Entity Relationship Diagram (ERD) and Data Flow Diagram (DFD). • Entity Relationship Diagram (ERD) • Data Flow Diagram (DFD) as software development requirement	2 days	Please See • Figure 3 (Entity Relationship Diagram) • See Figure 4 (Data Flow Diagram)	Completed
Domain Name Registration (via godaddy.com) 1. versatile, modular, user-friendly, upgradable, and scalable website/portal for ERP 2. Domain Name Registration (URL: agriboost.ph) for testing and implementation	7 days	Visit www.agriboost.ph	Completed
Establishment of Web hosting Digital Ocean (Droplets) up to 3 Year-Subscription - 8gb RAM - 4 vCPU's - 5TB Transfer - 2x SSD Variant - 100GB SSD	7 days	See • Figure 39 (Web Hosting Credentials)	Completed
Total days	44 days		100% Complete

Project Milestone and Achievements

The Team together with the Butuan City Agriculture Office conducted several research and benchmarking activities in order to formulate the process flow presented below. This helped the team identify the different stakeholders as well as different entry points and examine each user case. The process flow provided the team a better understanding of the user's behavior and preference.

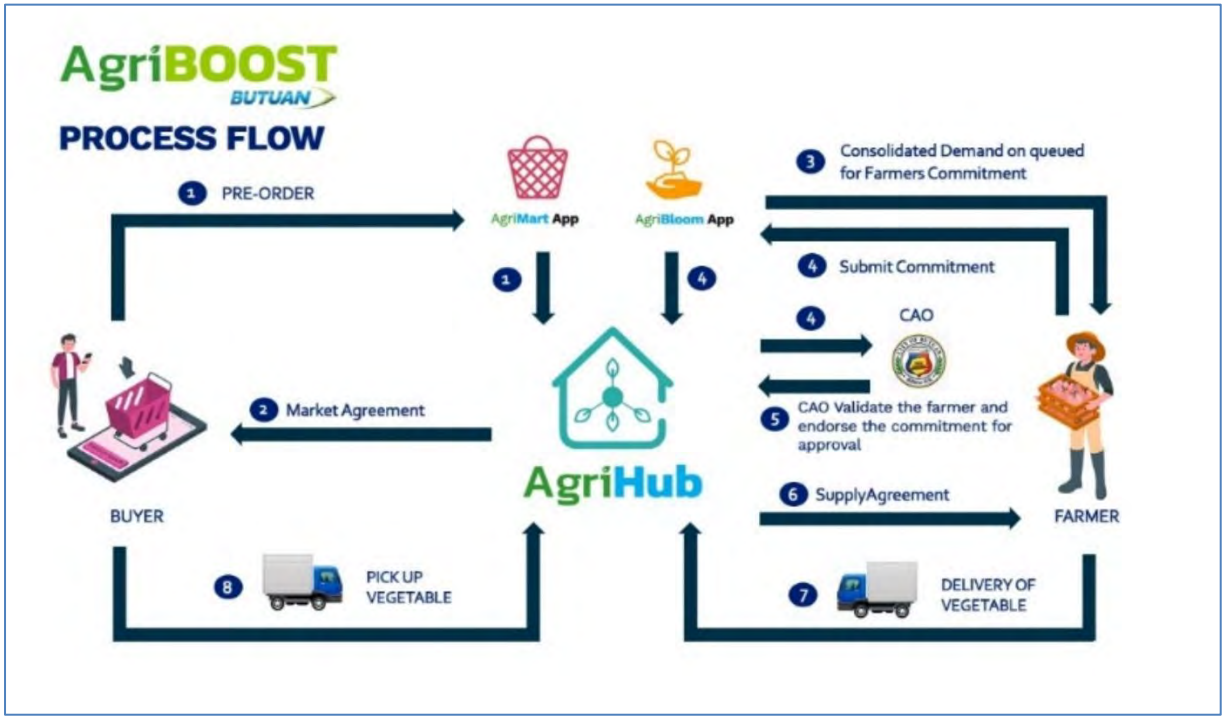


Figure 2. AgriBoost Process Flow

Entity Relationship Model (ERD)

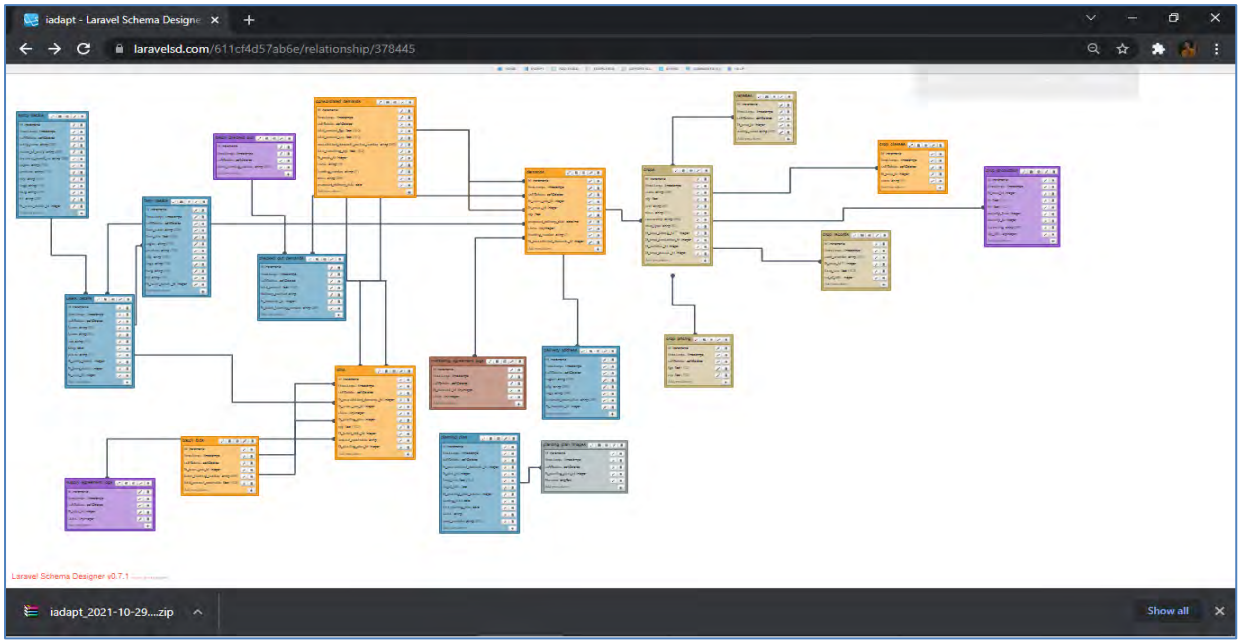


Figure 3. Entity Relationship Diagram

Data Flow Diagram (DFD)

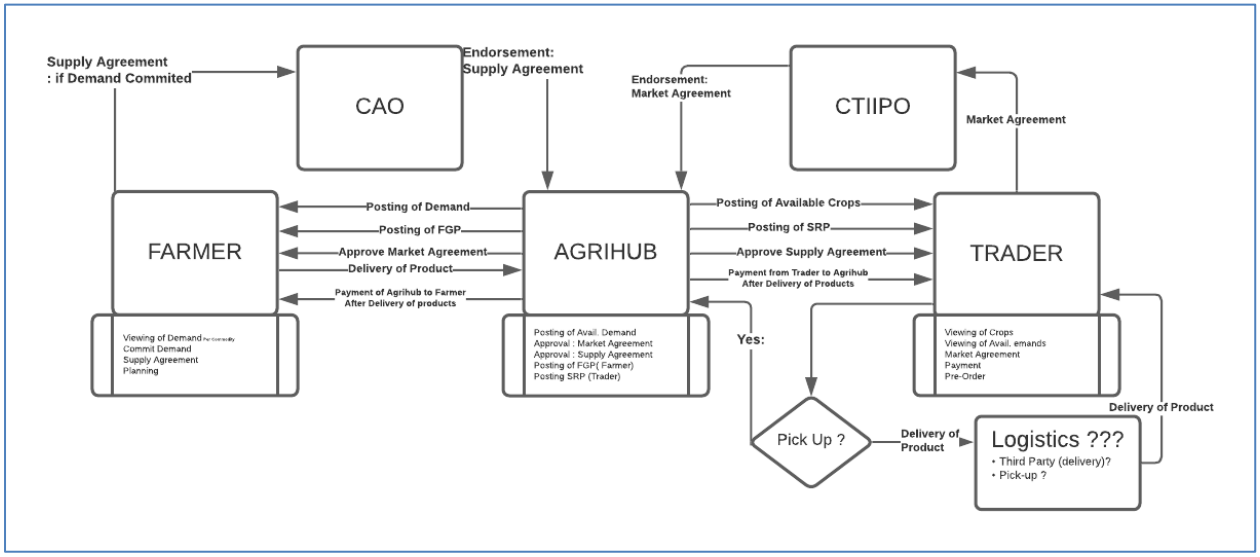


Figure 4. Data Flow Diagram (DFD)

The Work Plan (*Refer to Table 1. Project Work Plan*) was crafted with the guidance of the Butuan City Bloomberg Core Team and was focused on realizing the Minimum Viable Product of the ERP Platform. This contains the operational details that illustrate exactly what services will be delivered and to what level of quality.

Table 1. Project Work Plan

Phase 1 (Process Mapping) – Develop business processes to optimize the system functionality without compromising efficiency and control.			
Deliverables	**Expected Working day(s)**	**Target Due Dates**	**Review and Approvals Required**
➢ Inception Report 1. Provide process, methodologies, timeline, and targets; 2. Prepare detailed work and financial plan (i.e. Gantt Chart) for the creation of Prototype and Wireframes which shall include the timetable/schedule for each of the identified activities 3. Identify the data / information needed to be generated and compiled. 4. Acquiring JIRA all in one project management software.	1 day	3 days after issuance of Notice of Award (NOA)	Reviewed and Approved by City Bloomberg Core Team
➢ User Stories. Create User Stories for the following value-chain actor: 1. Local vegetable farmers; 2. Modern and retail traders/Bulk buyers; 3. Agrihub Operator; 4. City Agriculture Office (CAgO); and 5. City Trade, Industry, and Investment Promotions Office	7 days	12 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
➢ Prototype and Wireframes 1. Create Prototype and Wireframes per User Stories 2. Conduct of Wireframes and Prototype Demo	15 days	35 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
➢ Entity Relationship Diagram (ERD) and Data Flow Diagram (DFD). 1. Creation of Entity Relationship Diagram (ERD) and Data Flow Diagram (DFD) as software development requirement	3 days	40 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
➢ Domain Name Registration (via godaddy.com) 1. Creation of versatile, modular, user-friendly, upgradable, and scalable	7 days	45 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team

website/portal for ERP 2. Domain Name Registration (URL: agriboost.ph) for testing and implementation			
➢ Establishment of Web hosting Digital Ocean (Droplets) up to 3 Months-Subscription - 8gb RAM - 4 vCPU's - 5TB Transfer - 2x SSD Variant - 100GB SSD	7 days	50 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
TOTAL NO. OF DAYS For PHASE 1	**44 DAYS**		

Phase 2 (Server and ERP Module Setup) - Conduct acceptance testing to designated users while setting up Cloud Server and Core Modules of ERP as an initial stage of application development.

Deliverables	**Expected Working day**	**Target Due Dates**	**Review and Approvals Required**
➢ User Registration (Farmers and Consumers) 1. UI (User Interface) used as design reference 2. Software Implementation 3. API (Application Programming Interface) used as a bridge between the mobile application and the server	4 days	50 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
➢ AgriHub Data Management Module - Viewing of Crops & Prices - Activation of Users	6 days	55 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
➢ Farmer Planting and Monitoring Module - Bidding - Planting Schedule - Progress Report	6 days	60 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
➢ Trader Order Management Module - Posting of Demands	3 days	60 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
➢ Apple store and Google play store deployment	15 days	60 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team

➢ Operation Manual, UAT, and Training 1. Following successful installation, commissioning and testing of the ERP, a User Acceptance Test (UAT) is to be carried out and a UAT Report submitted for review and approval by the clients; 2. Submission of Operation and User Maintenance Manual 3. Capacity Building for the City Government Staff on the Manual and ERP, followed by handing over of the completed ERP.	2 days	65 days after issuance of NOA	Reviewed and Approved by City Bloomberg Core Team
TOTAL NO. OF DAYS For PHASE 2	**21 DAYS**		
OVERALL NO. OF DAYS	**65 DAYS**		

The Team Created User Personas which represented the needs of the larger group of users on the ERP system. Descriptions include behavior patterns, goals, skills, attitudes, and background information, as well as the environment in which a persona operates. User personas assist the Team in answering one of their most critical questions: "Who are we designing for?" Understanding target consumers expectations, worries, and motivations allows the team to build a system that will meet their requirements.

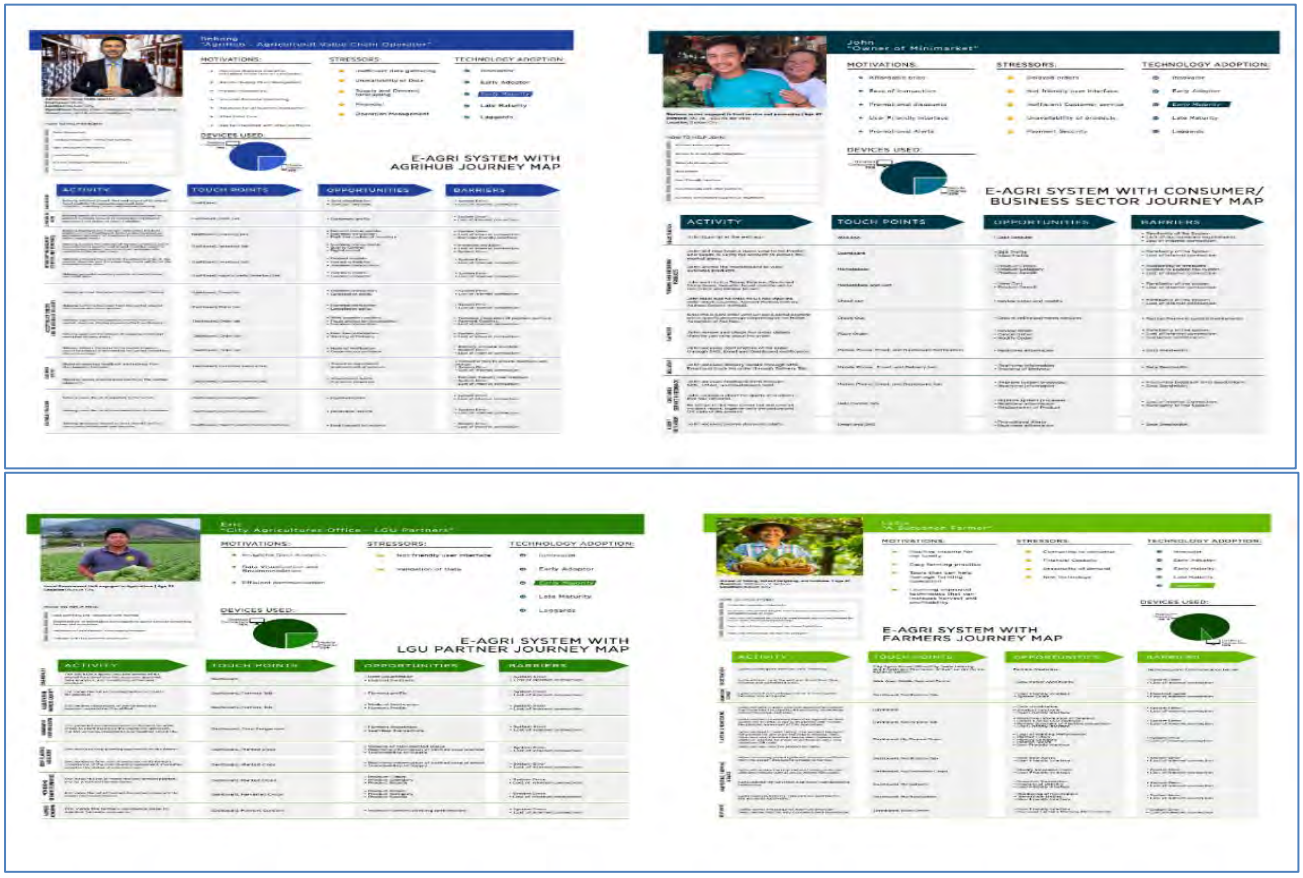


Figure 5. User Persona of AgriBoost Components (AgriBloom and AgriMart)

A design sprint was held every week. Everyone on the team participated with the goal of creating a product backlog that fully describes the functionality to be added over the course of the project. The user stories below were made based on the needs of the user personas identified by the Core team.

For AgriBloom

As a Farmer, I want to register with AgriBloom so that I can view the demand of vegetables online.

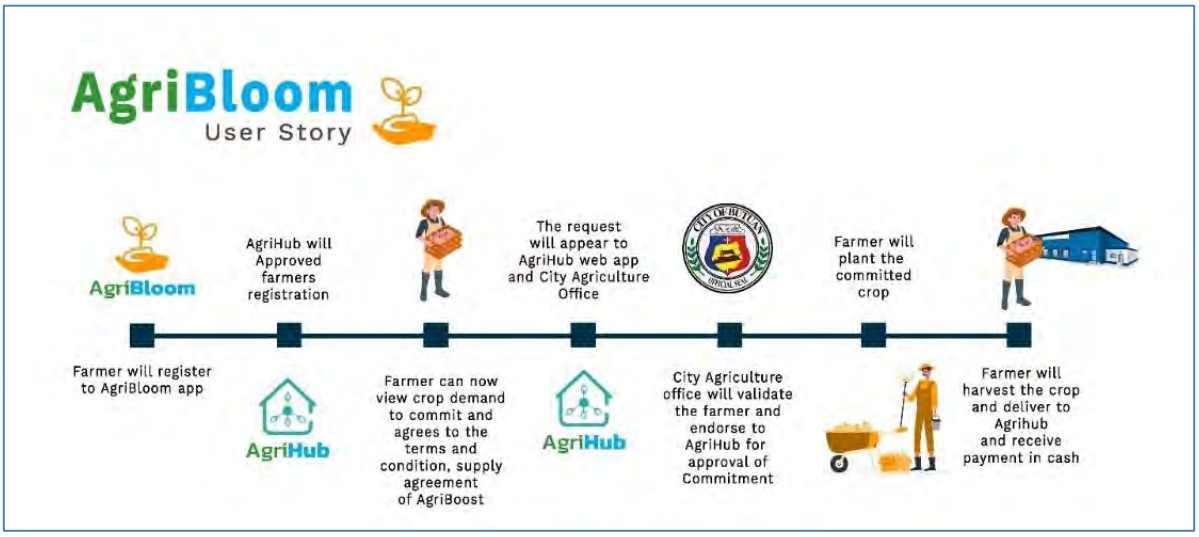


Figure 6. AgriBloom User Story

For AgriMart

As a Buyer/Trader I want to register with AgriMart so that I can pre-order vegetables online.

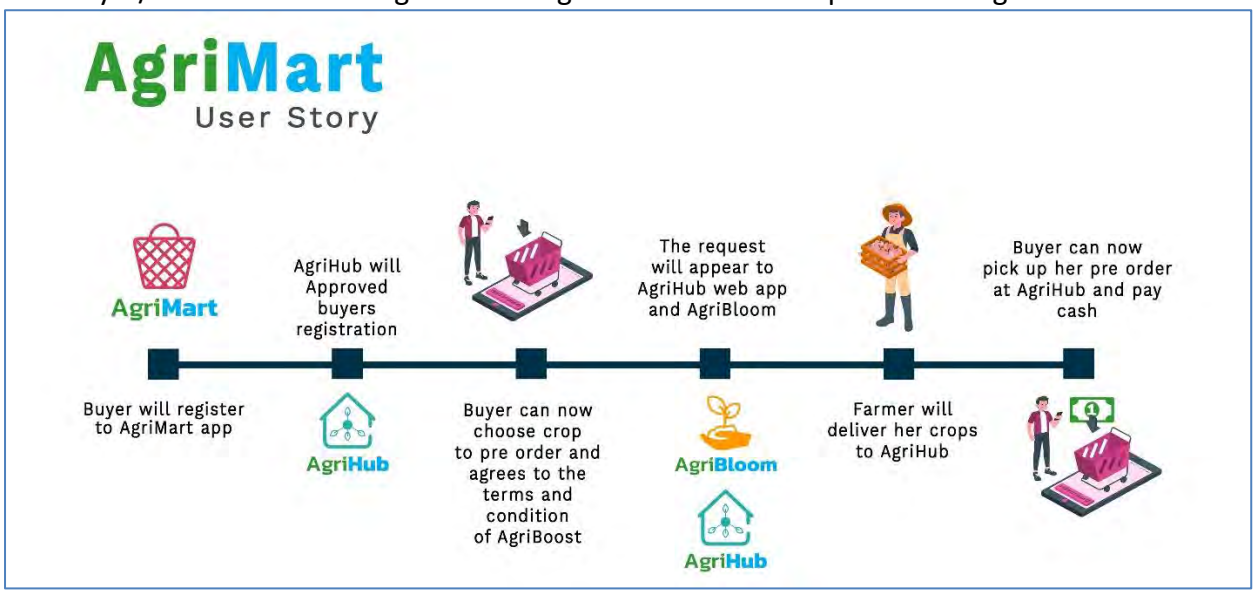


Figure 7. AgriMart User Story

For AgriHub

As an Agrihub Operator, I want to monitor the overall operation of the AgriHub, Forecast the demand and supply, and approve users of the platform.

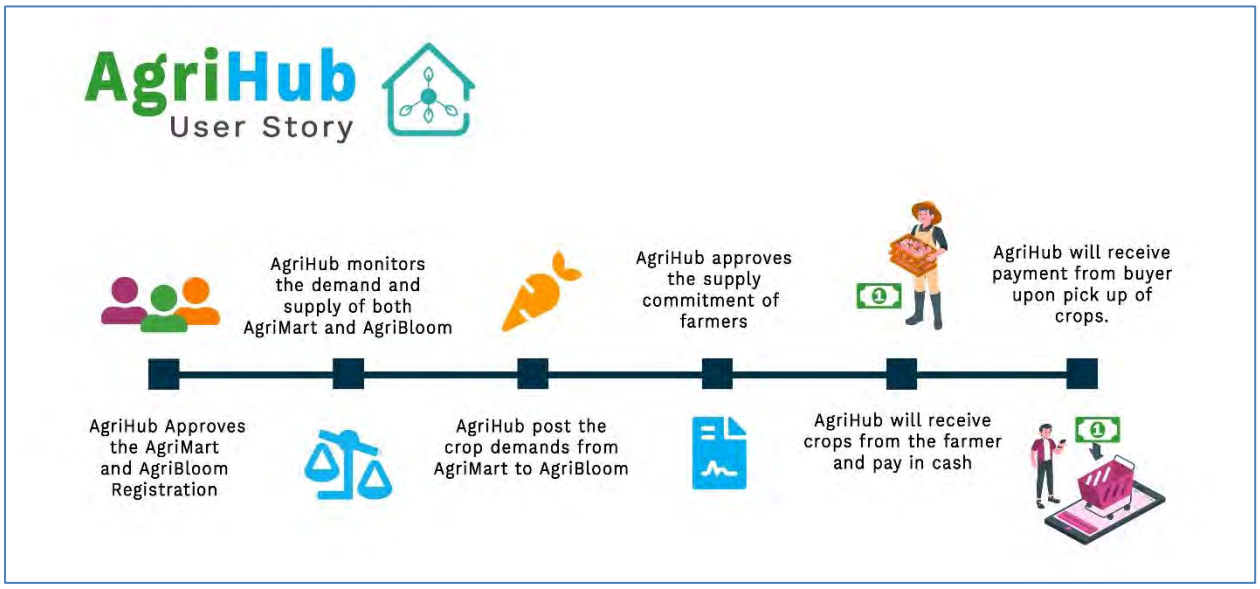


Figure 8. AgriHub User Story

As the consultation and User Demo were conducted, assumptions were addressed and stories of resilience were heard from the Taboan vendors.

Figure 9. Traders Prototype Demo

Representatives of the Caraga Agusan Butuan Allied Hotels and Restaurants Association (CABAHARA) and Institutional buyers designed and tested the AgriMart application in order to optimize the user interface and user experience.

Figure 10. Institutional Buyers Prototype Demo

A farmers meeting was conducted to discuss user testing and co-designing the prototype. During the co-design session, the farmers collaborated on relinking the problem they were experiencing.

Figure 11. Farmers Prototype Demo

Figure 12. AgriHub Operator User Testing

PROTYPYES AND WIREFRAMES - AgriBloom

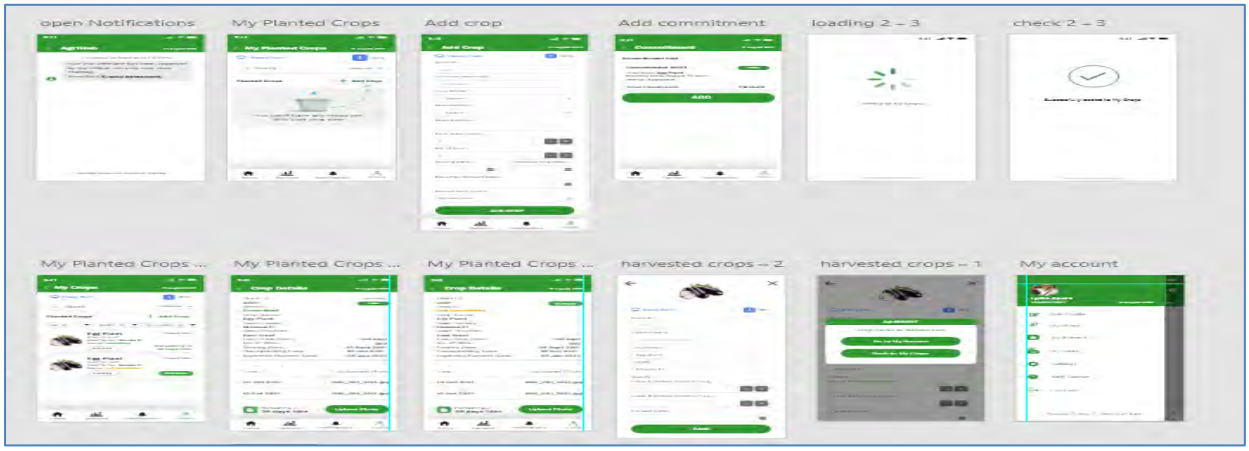


Figure 13. AgriBloom Working Prototype and Wireframe

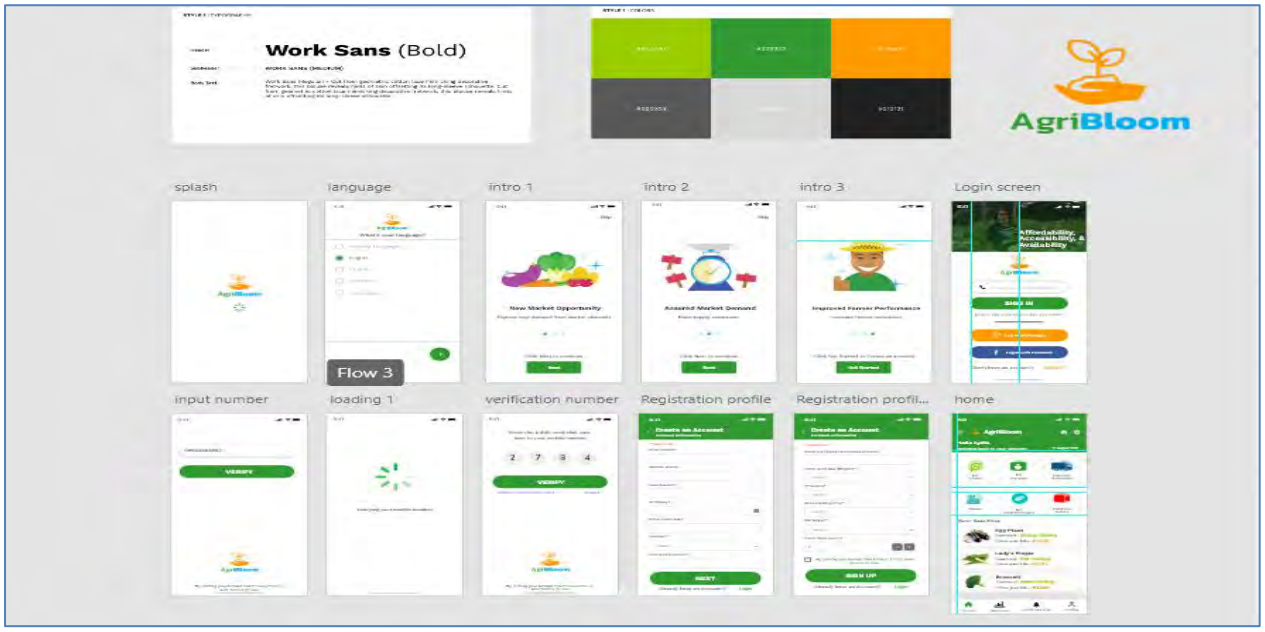


Figure 13. 1 AgriBloom Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES - AgriBloom

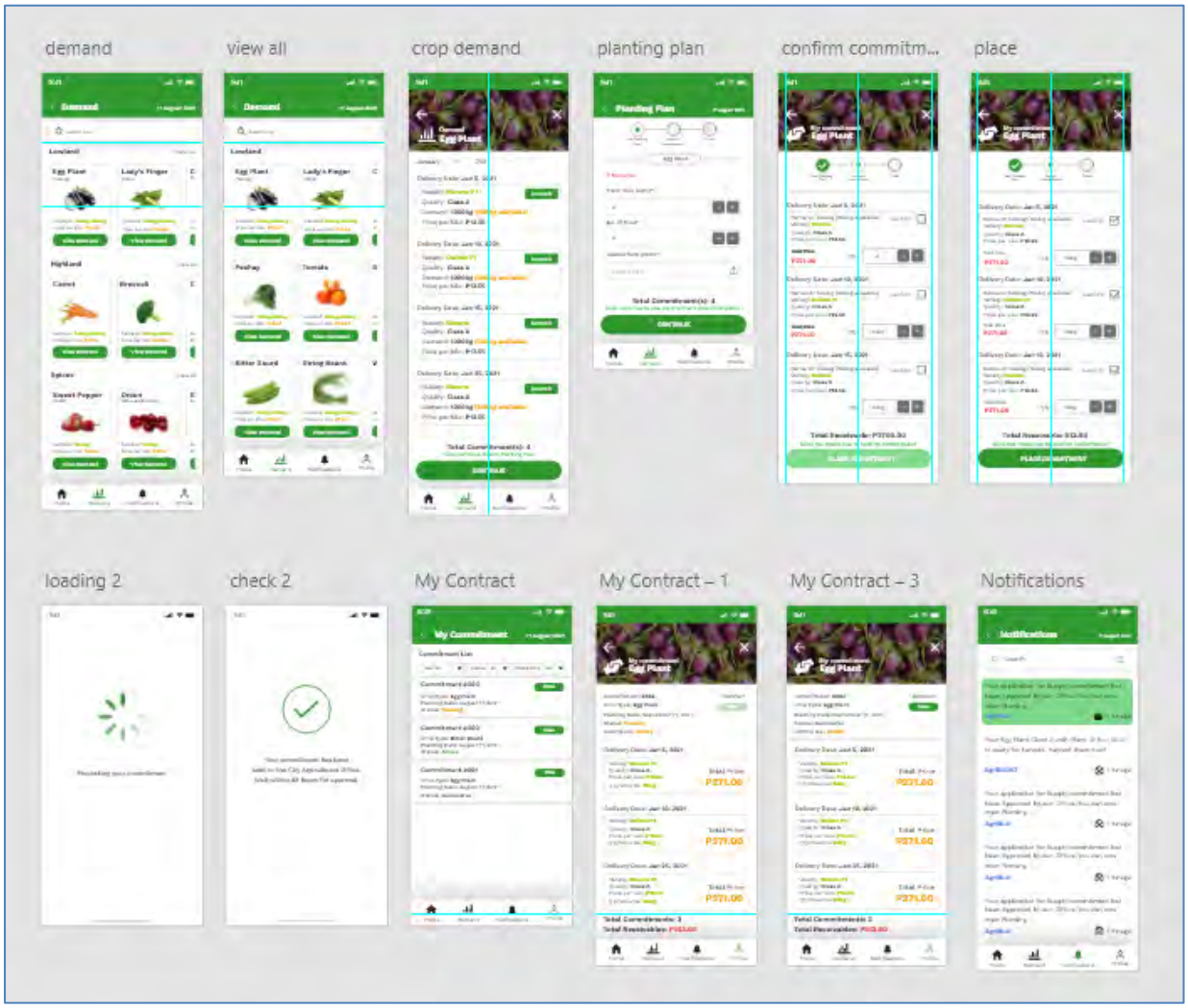


Figure 13.2 AgriBloom Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES - AgriBloom

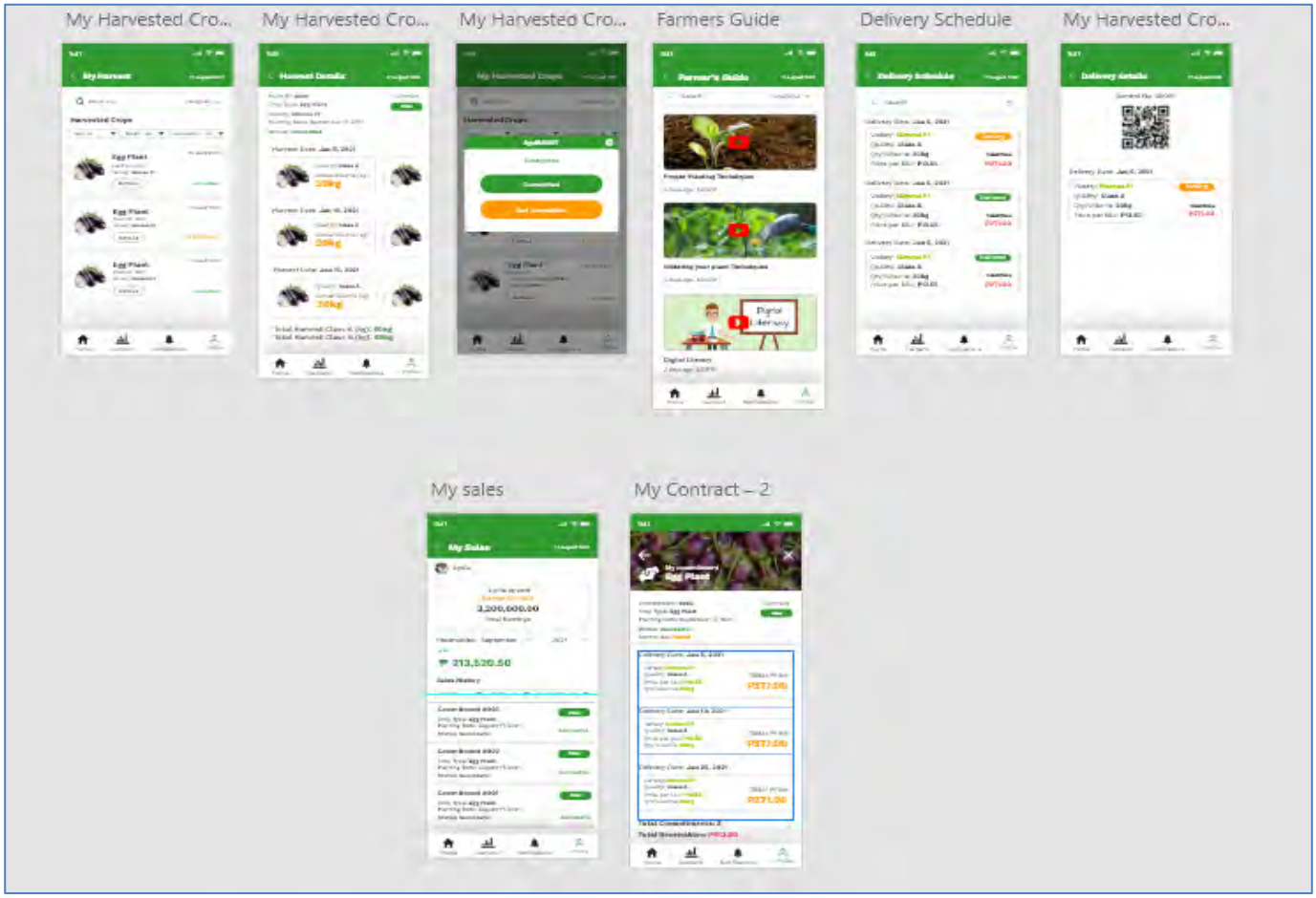


Figure 13.3 AgriBloom Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES – AgriMart

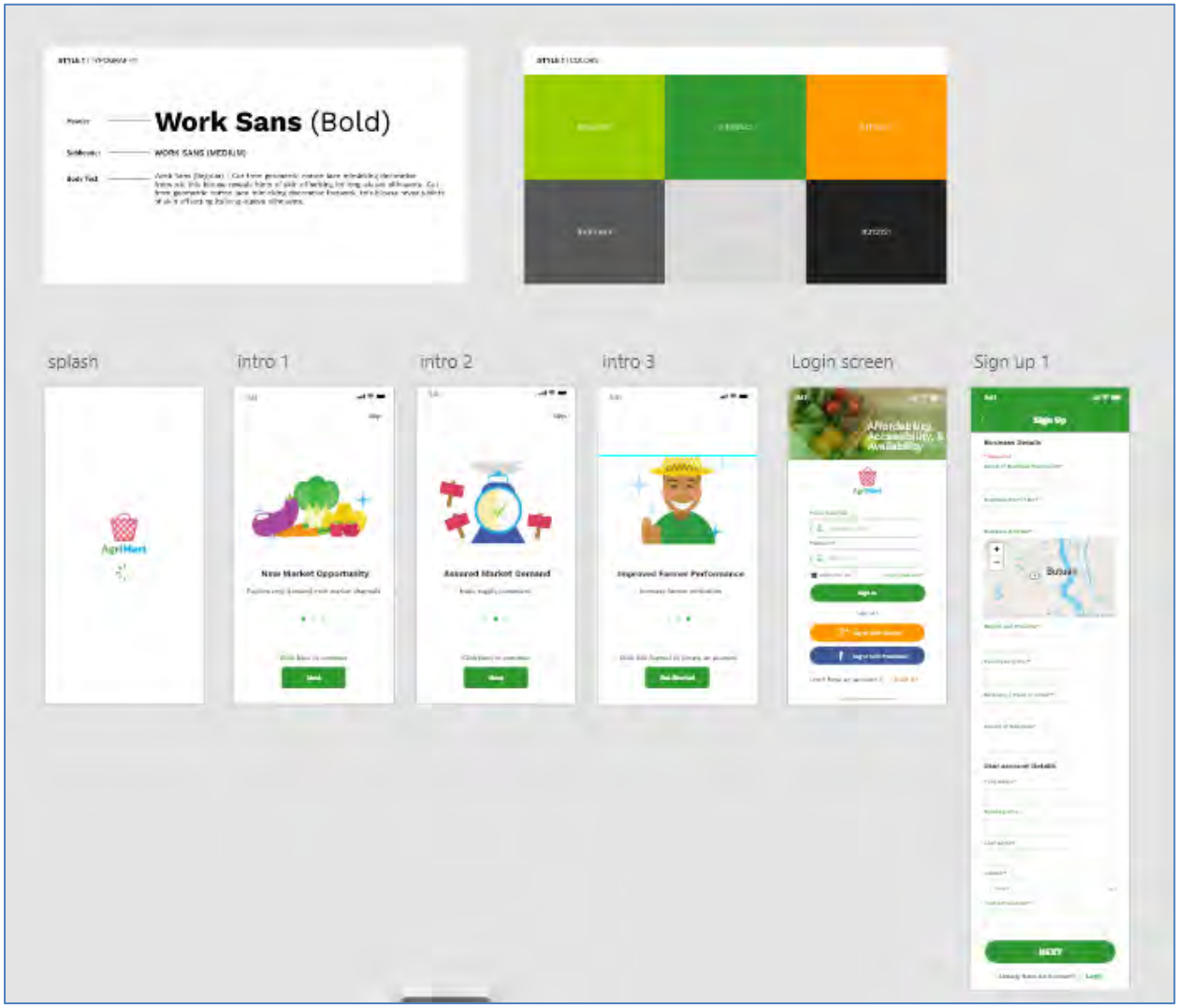


Figure 14. AgriMart Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES – AgriMart

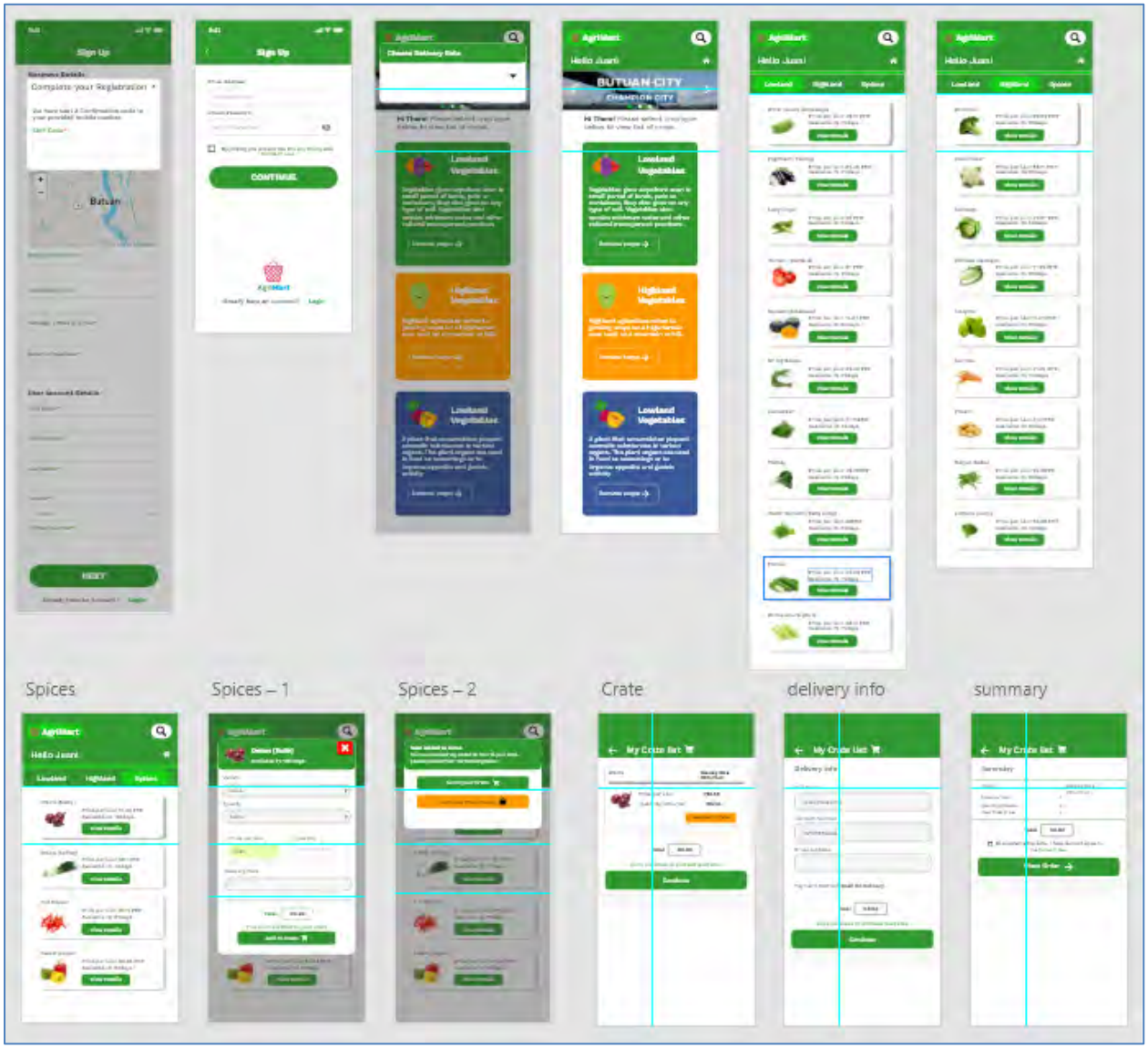


Figure 14.1. AgriMart Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES – AgriMart

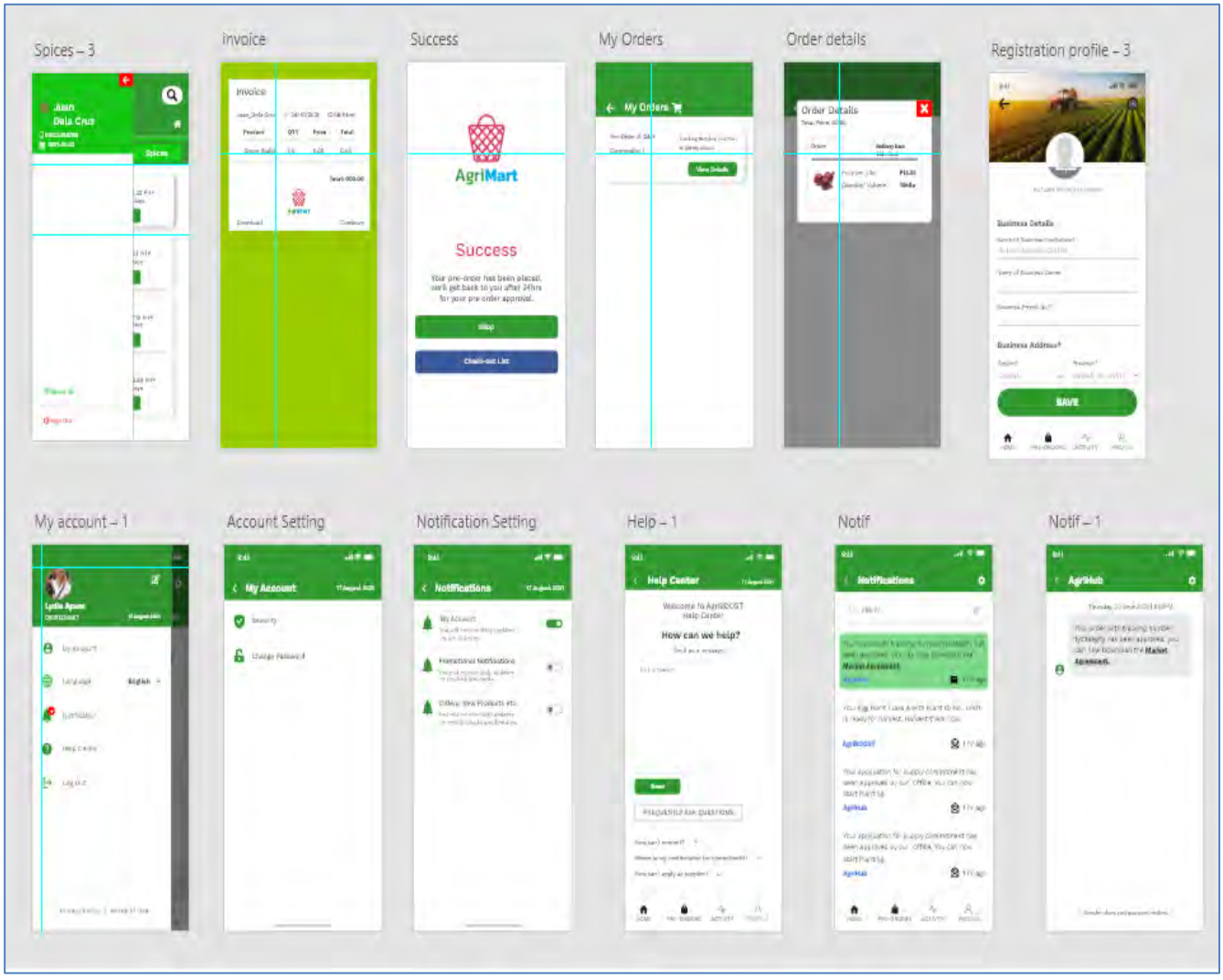


Figure 14.2. AgriMart Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES – AgriHub

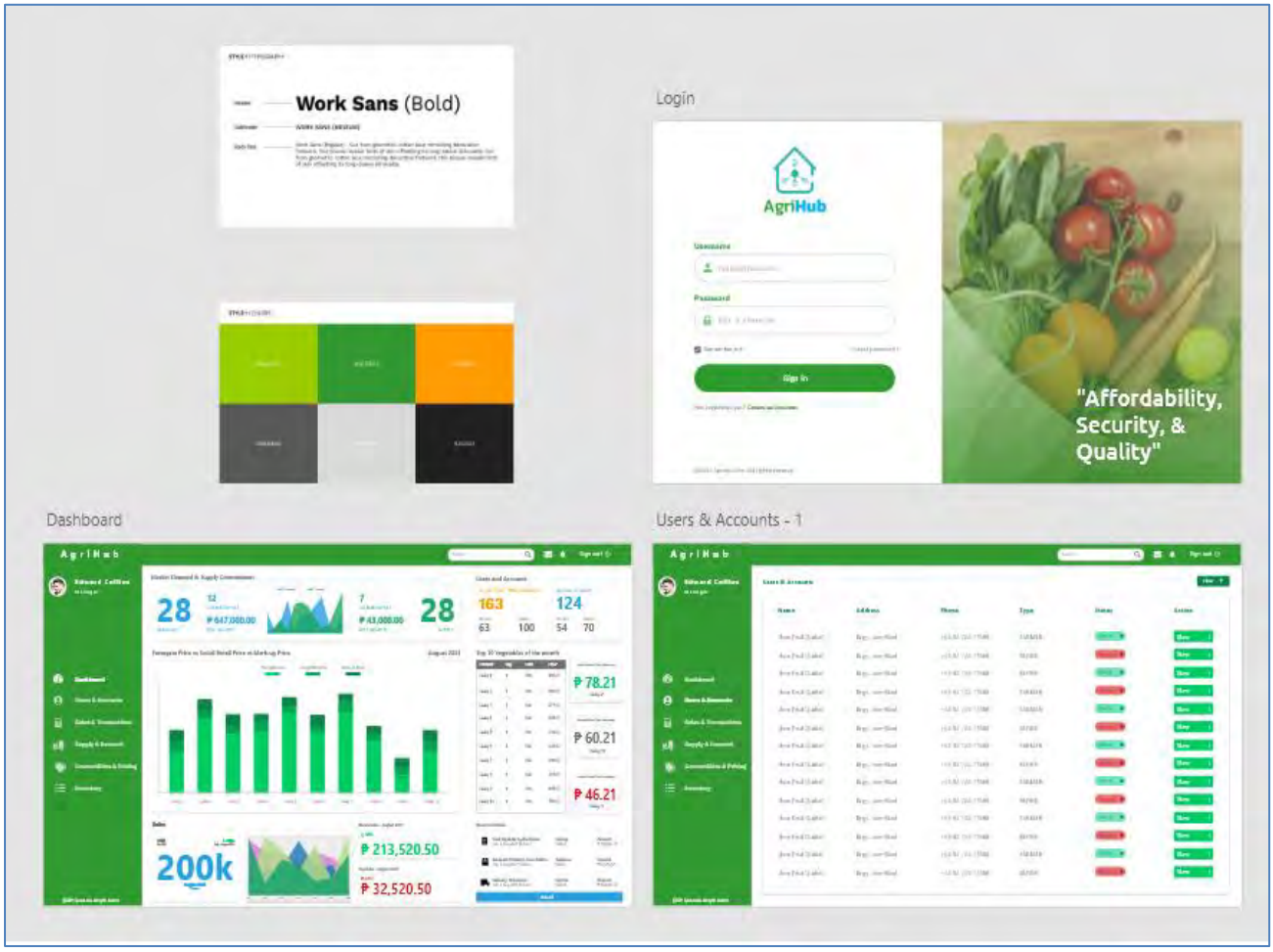


Figure 15. AgriHub Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES – AgriHub

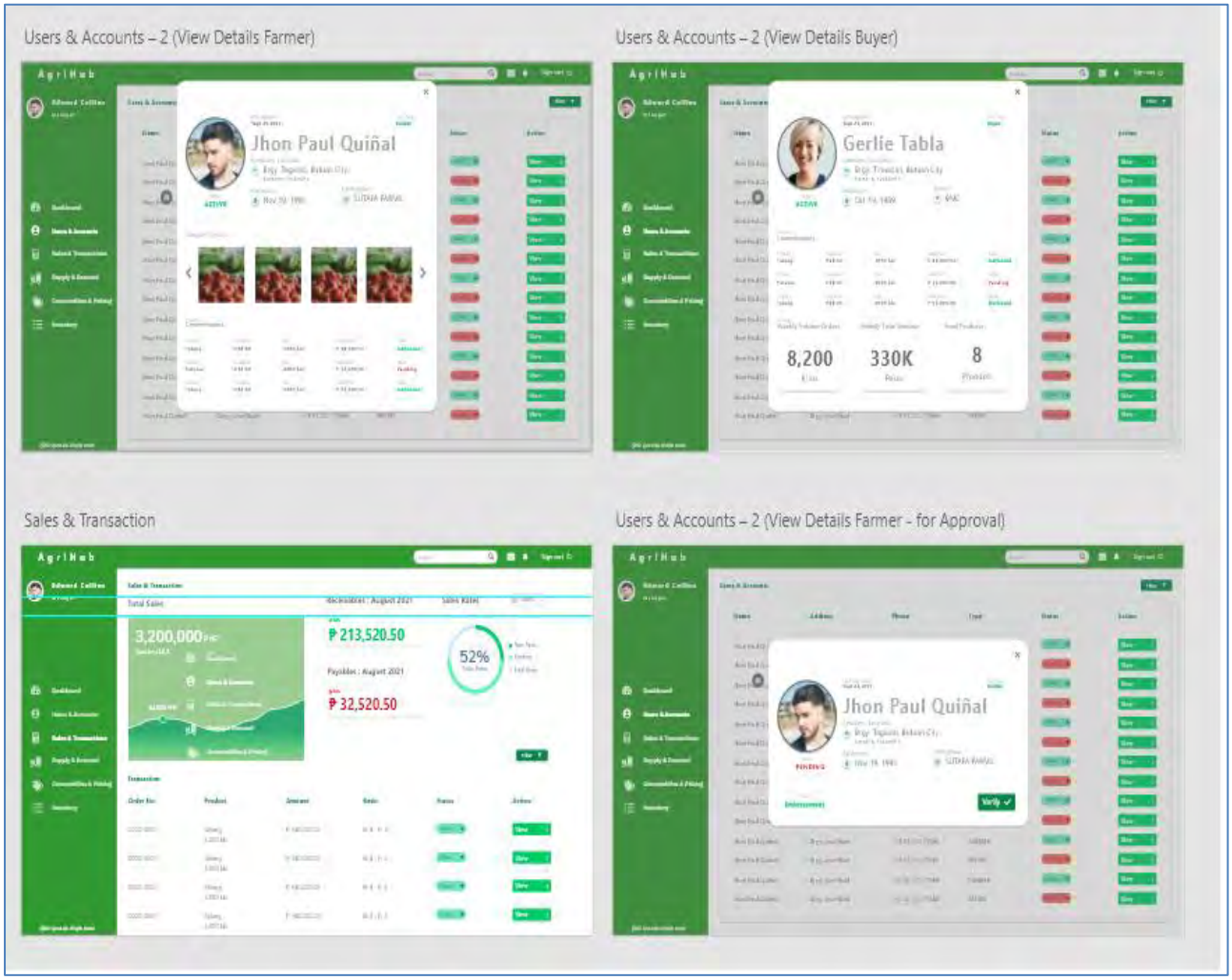


Figure 15.1. AgriHub Working Prototype and Wireframe

PROTYPYES AND WIREFRAMES – AgriBloom

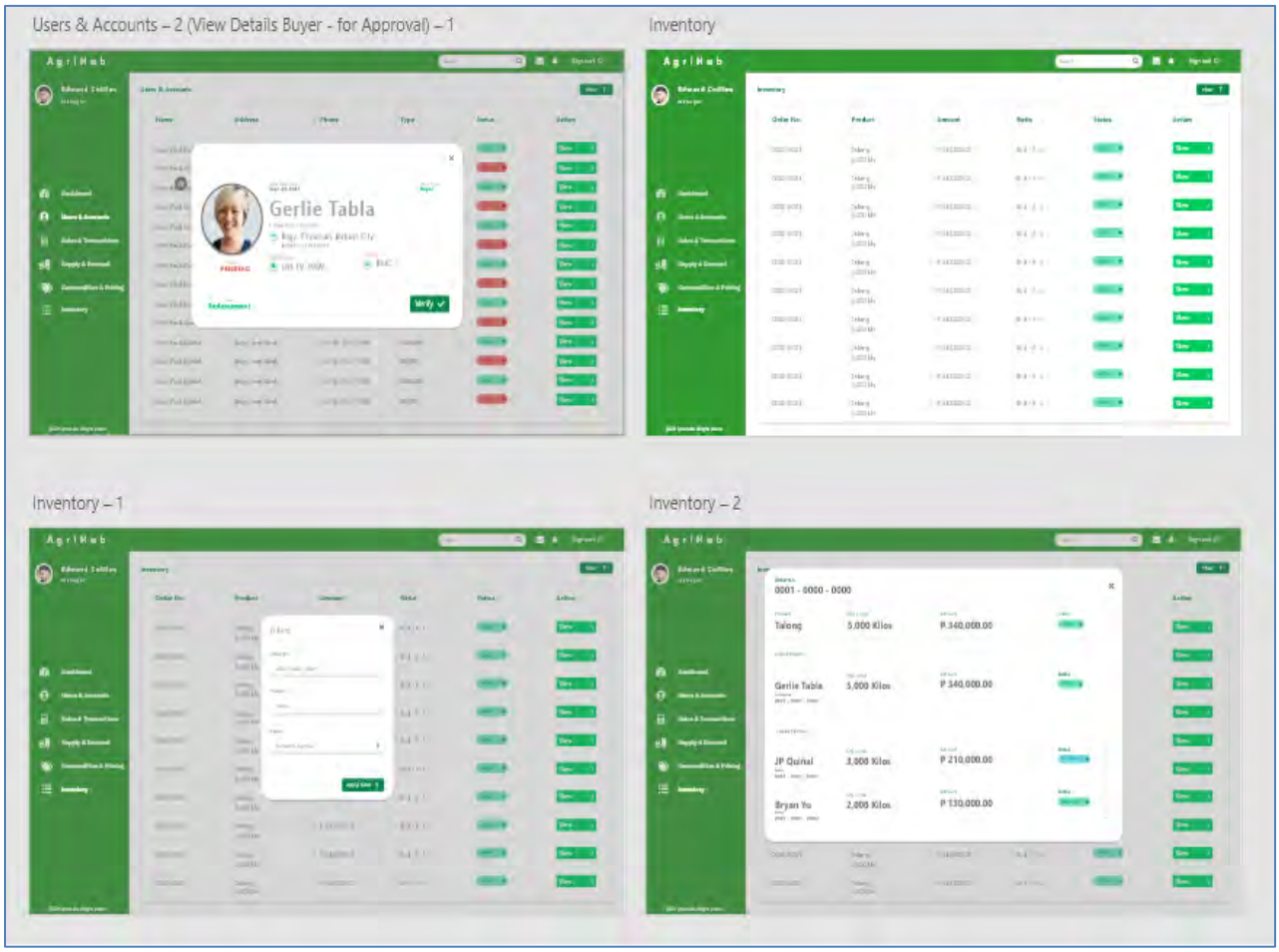


Figure 15.2. AgriBloom Working Prototype and Wireframe

Tasks carried out during the Second Phase (Server and ERP Module Setup)
During this second phase, the Team conducted acceptance testing to designated users while setting up Cloud Server and Core Modules of ERP as an initial stage of application development.

Phase 2 (Server and ERP Module Setup) - Conduct of acceptance testing to designated users while setting up Cloud Server and Core Modules of ERP as an initial stage of application development.			
Deliverables	**No. of Days Delivered**	**Mode of Verification**	**Remarks**
➢ User Registration (Farmers and Consumers) • UI (User Interface) used as design reference • Software Implementation • API (Application Programming Interface) used as a bridge between the mobile application and the server	4 days	Please See • Figure 13 (AgriBloom Working Prototype and Wireframe) • Figure 13.1 (AgriBloom Working Prototype and Wireframe) • Figure 13.2 (AgriBloom Working Prototype and Wireframe) • Figure 13.3 (AgriBloom Working Prototype and Wireframe) • Figure 14 (AgriMart Working Prototype and Wireframe) • Figure 14.1 (AgriMart Working Prototype and Wireframe) • Figure 14.2 (AgriMart Working Prototype and Wireframe) • Figure 15 (AgriHub Working Prototype and Wireframe) • Figure 15.1 (AgriHub Working Prototype and Wireframe) • Figure 15.2 (AgriHub Working Prototype and Wireframe) • Figure 40 (API Bridge)	Completed
➢ AgriHub Data Management Module - Viewing of Crops & Prices - Activation of Users	6 days	Work in Progress	Applied Changes in the Account Activation (80% done)

➢ Farmer Planting and Monitoring Module - Bidding - Planting Schedule - Progress Report		Please See • Figure 15 (AgriHub Working Prototype and Wireframe) • Figure 15.1 (AgriHub Working Prototype and Wireframe) • Figure 15.2 (AgriHub Working Prototype and Wireframe)	Completed
➢ Trader Order Management Module - Posting of Demands	3 days	Please See • Figure 29 (Crops Category) • Figure 32 (AgriMart pre order list and details)	Completed
➢ Apple store and Google play store deployment	15 days	See Figure 39 (Google Playstore Credentials)	Waiting for approval (Google Playstore and Apple Store)
➢ Operation Manual, UAT, and Training • User Acceptance Test (UAT) is to be carried out and a UAT Report submitted for review and approval by the clients; • Submission of Operation and User Maintenance Manual • Capacity Building for the City Government Staff on the Manual and ERP, followed by handing over of the completed ERP.	2 days	• See Figure 39 (Google Playstore Credentials) • See Figure 38 User Manual (for AgriHub, AgriBloom and AgriMart)	Completed
TOTAL NO. OF DAYS For PHASE 2	21 DAYS		90% Completed

Project Milestones and Achievements

The team presented acceptance criteria which were based on the results of the sprint meeting and user testing of all segments. Moreover, it helps the Team define the scope**, clarifies the** expected outcome(s) of a user story and requirements of user stories. It also assists the Team in effectively defining the expectations of the project owner.

AGRIBLOOM

Scenario: As a Farmer, I want to register with AgriBloom so that I can view the demand of vegetables online**.**

Acceptance Criteria:

- Browse agriboost.ph
- Download the app
- Click Sign Up
- Fill up requirements
    - First Name
    - Middle Name
    - Last Name
    - Email Address
    - Gender
    - Contact Number
- Input Verification code send via SMS
- Input Farm Details
    - Name Farm organization/Association
    - Farm Address
        - Province
        - Municipality
        - Barangay
    - Farm Size (sqm)
- Click the check box to agree to the Terms of Use and Privacy Policy

AGRIBLOOM

Log in View for farmers

Log in is done by entering mobile number or thru Gmail and Facebook.

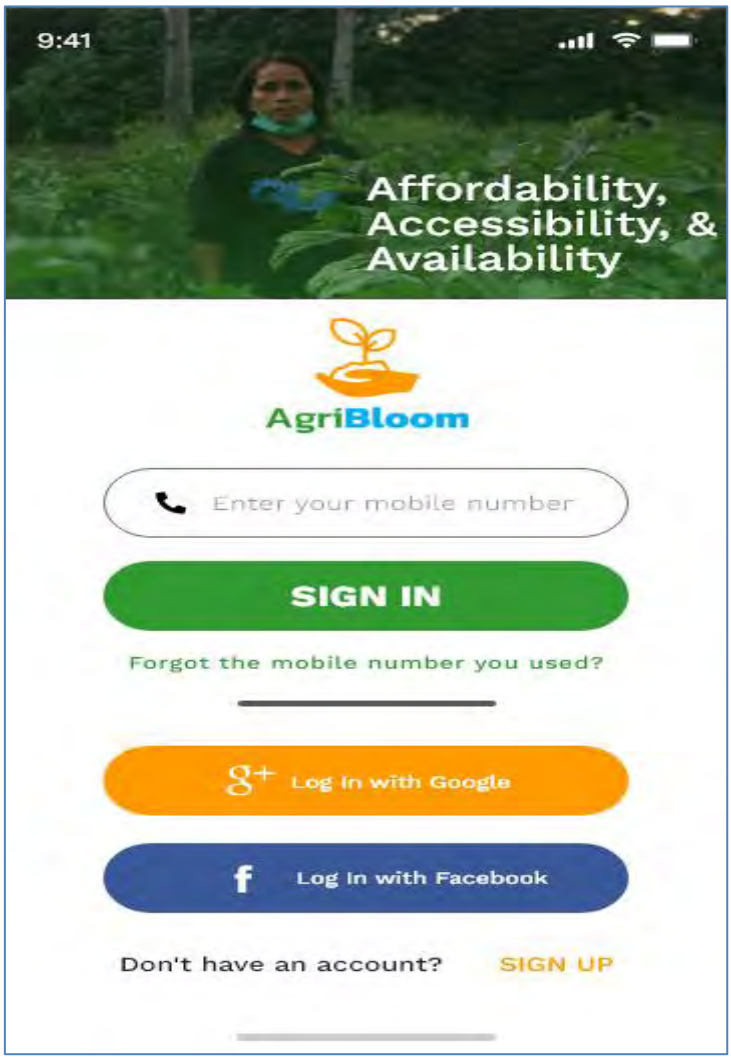


Figure 16. AgriBloom Log-in View

Fill up requirements for opening an account in AgriBloom for farmers.

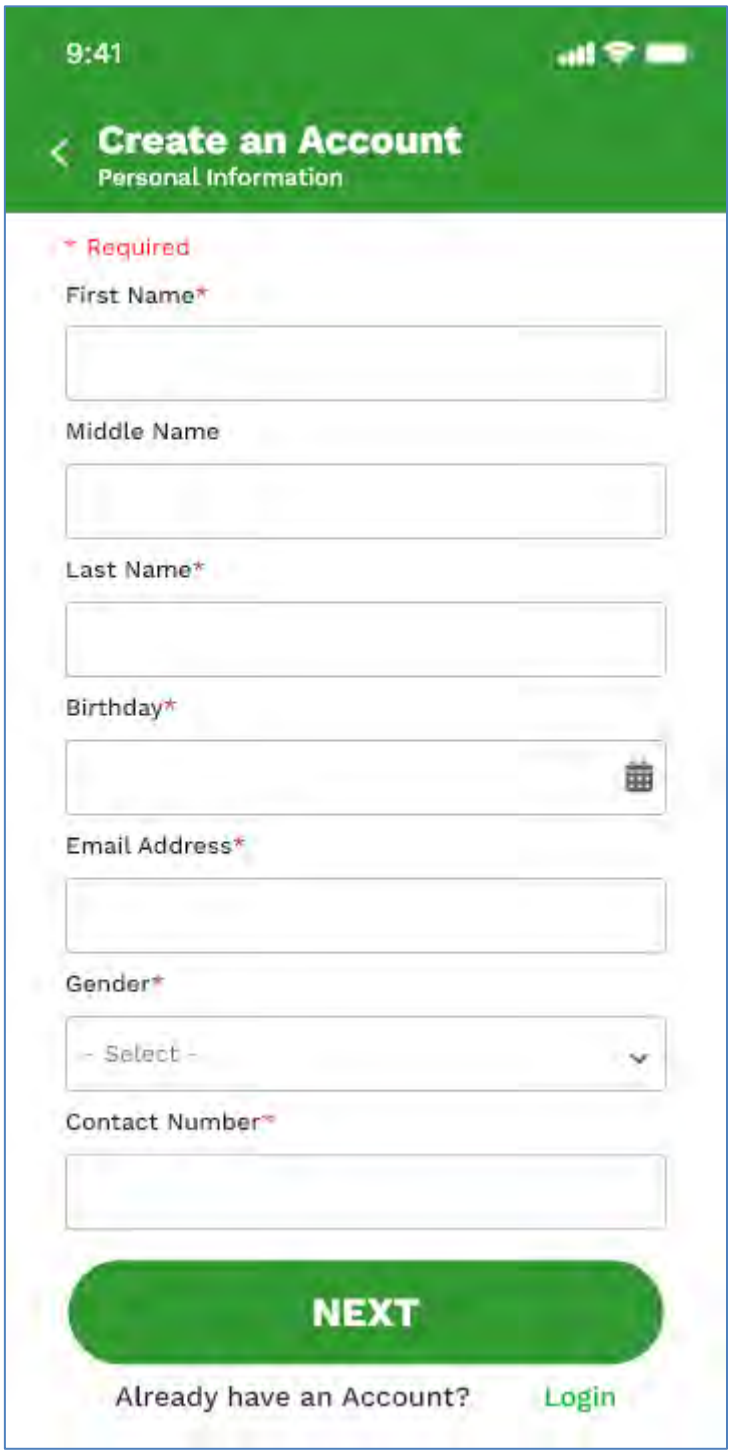


Figure 17. AgriBloom Registration View

Input Verification code send via SMS

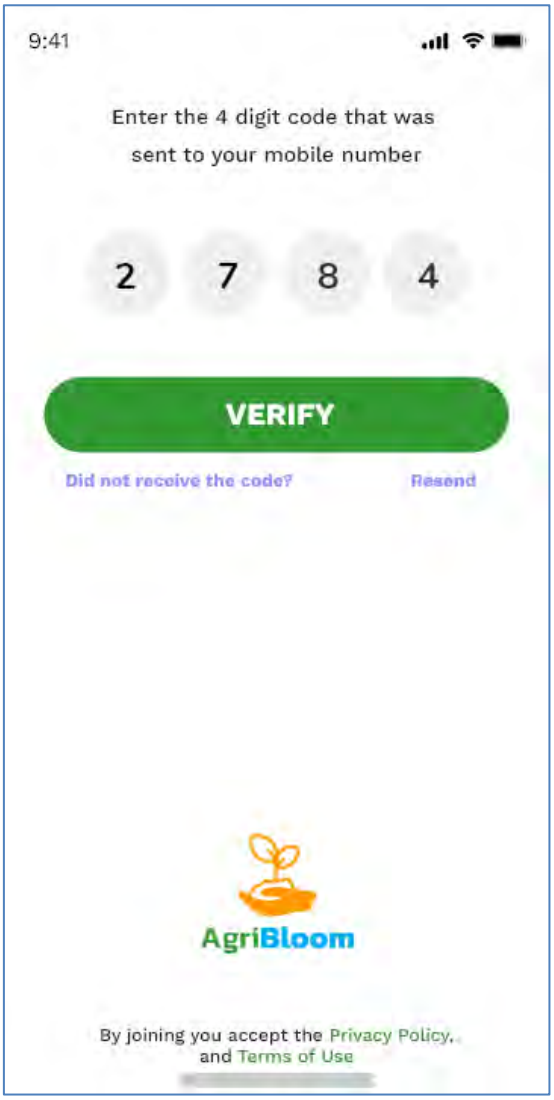


Figure 18. AgriBloom SMS Verification

Input Farm Details

This information is normally collected once, but needs to be updated on a quarterly basis.

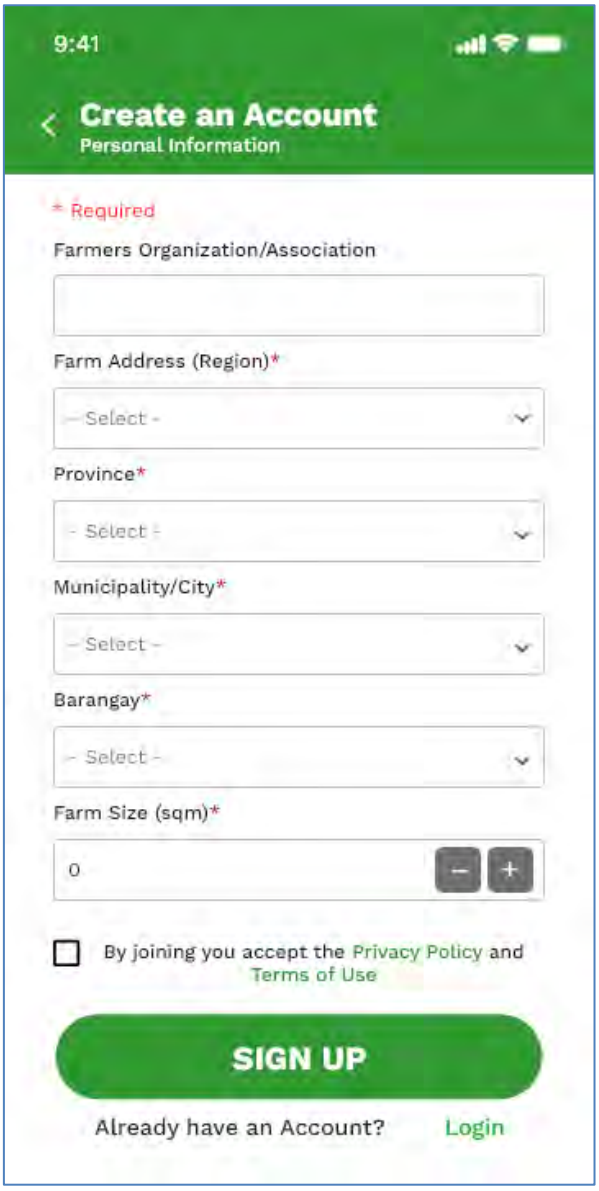


Figure 19. AgriBloom Farm Details

Scenario: As a Farmer, I want to commit to the demand for vegetables of AgriBloom.

Acceptance Criteria:

- Access Demand
- Choose crops
    - View Demand
    - Commit
    - Add Planting Plan
        - Seed Provider
        - Farm Size
        - Number of Hills
        - Quantity
        - Sowing Date
        - Transplant Date
        - Upload Farm Photo
    - Confirm commitment
    - Place Commitment (Supply Agreement)
- Wait for approval of supply agreement

Home Tab

Figure 20. AgriBloom Homepage

Demand Tab for Farmers

This shows the overall demand from the market channels. The products have been categorized into three classifications namely: Lowland, Highland, and Spices. The following criteria were based on inputs from the City Agriculture Office.

Figure 21. AgriBloom Demand Tab

Creation of Planting Plan

It helps farmers calculate how much of each crop to plant in the farm lot each week, when will be transplanted in the field—timing and quantity of harvest on a weekly basis through the growing season and succession planting or cover cropping to make maximum use of limited hectarage.

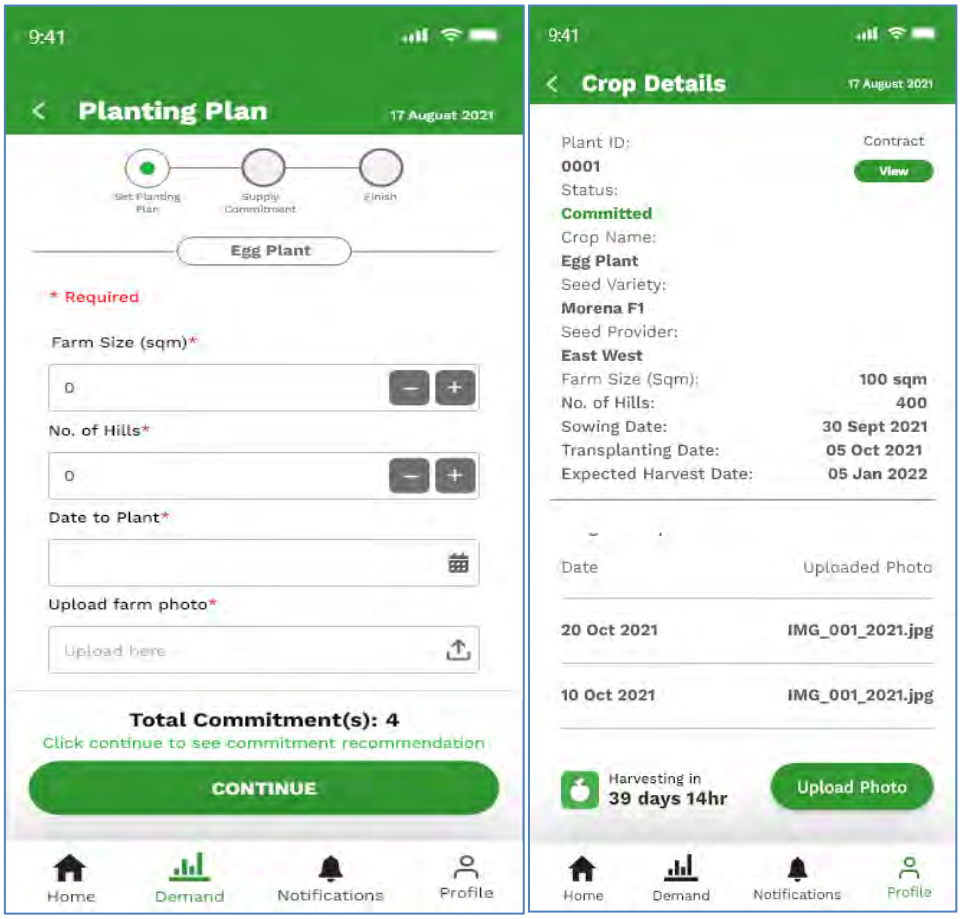


Figure 22. AgriBloom Planting Plan

Confirming and placing of commitment to supply

Commitment confirmation is typically used each time a farmer signifies to supply the demanded vegetables in the marketplace. Each commitment binds the farmers to supply the demanded vegetables by executing a supply agreement with the AgriHub.

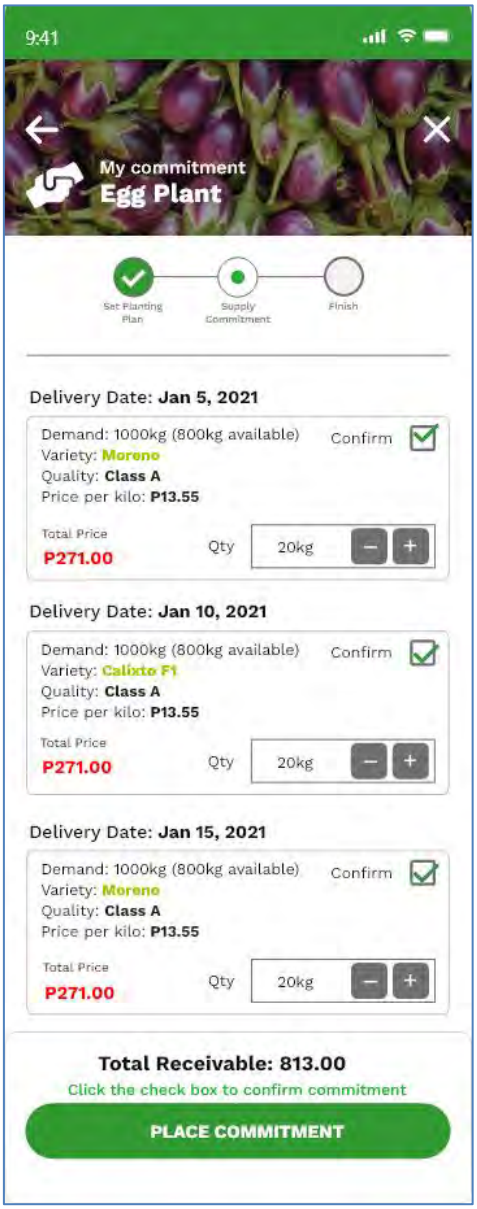


Figure 23. AgriBloom Planting Plan

Once the commitment was submitted, the City Agriculture Office, will conduct due diligence within 48 hrs. and then will provide feedback immediately to the farmer about the status of his supply agreement.

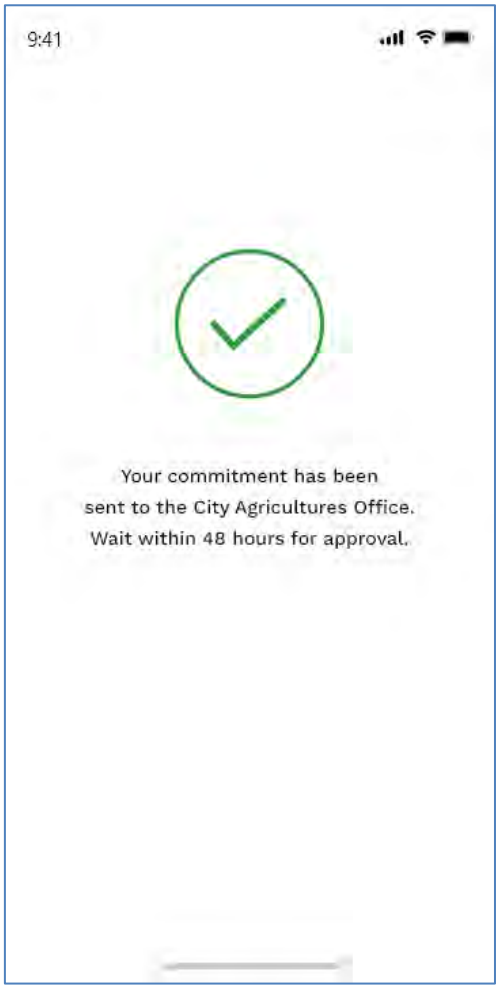


Figure 24. AgriBloom submission of commitment

As a Farmer, I want to plant the vegetable I choose to commit and send a progress report so that I will be able to supply the demand.

Acceptance Criteria:

- Access Commitment List
- Open approved commitment (Supply Agreement)
- Click plant now
- Add progress report
    - Upload Photo

Commitment List

This shows all commitments made by the farmer.

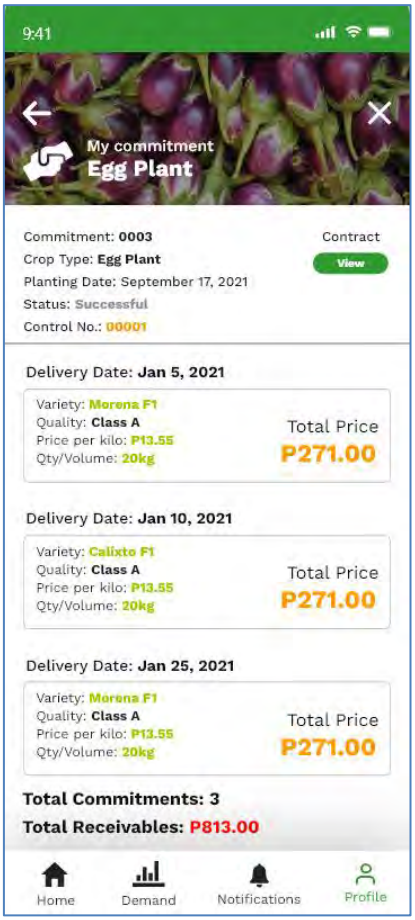


Figure 25. AgriBloom Commitment list

Once the commitments are approved, the farmer will receive notification through the platform, email and SMS informing him that the supply agreement is approved and he can already start creating his planting plan in order to start planting.

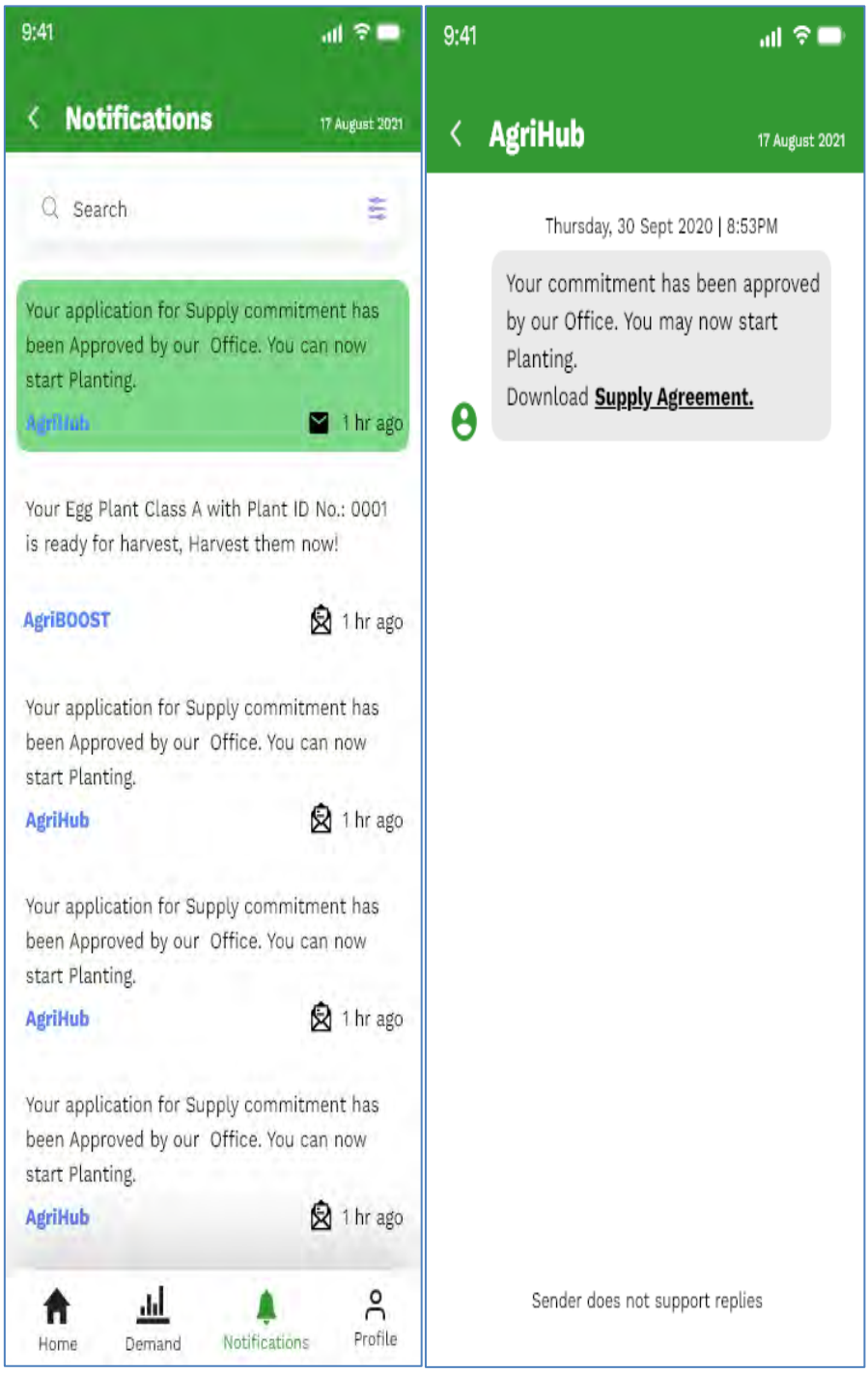


Figure 26. AgriBloom Commitment Notification

AgriMart
As a Buyer/Trader I want to register with AgriMart so that I can pre-order vegetables online.

Acceptance Criteria:

- Browse agriboost.ph
- Download the app
- Click Sign Up
- Fill up requirements
  - Name of Business/Institution
  - Business Permit No.
  - Business Address
    - Region and Province
    - Municipality/City
    - Barangay / Road or Street
    - Nature of Business
  - User Account Details
    - First Name
    - Middle Name
    - Last Name
    - Gender
    - Contact Number
- Input Verification code send via SMS
- Input Username (email address) and Password

Fill up requirements for AgriMart account registration

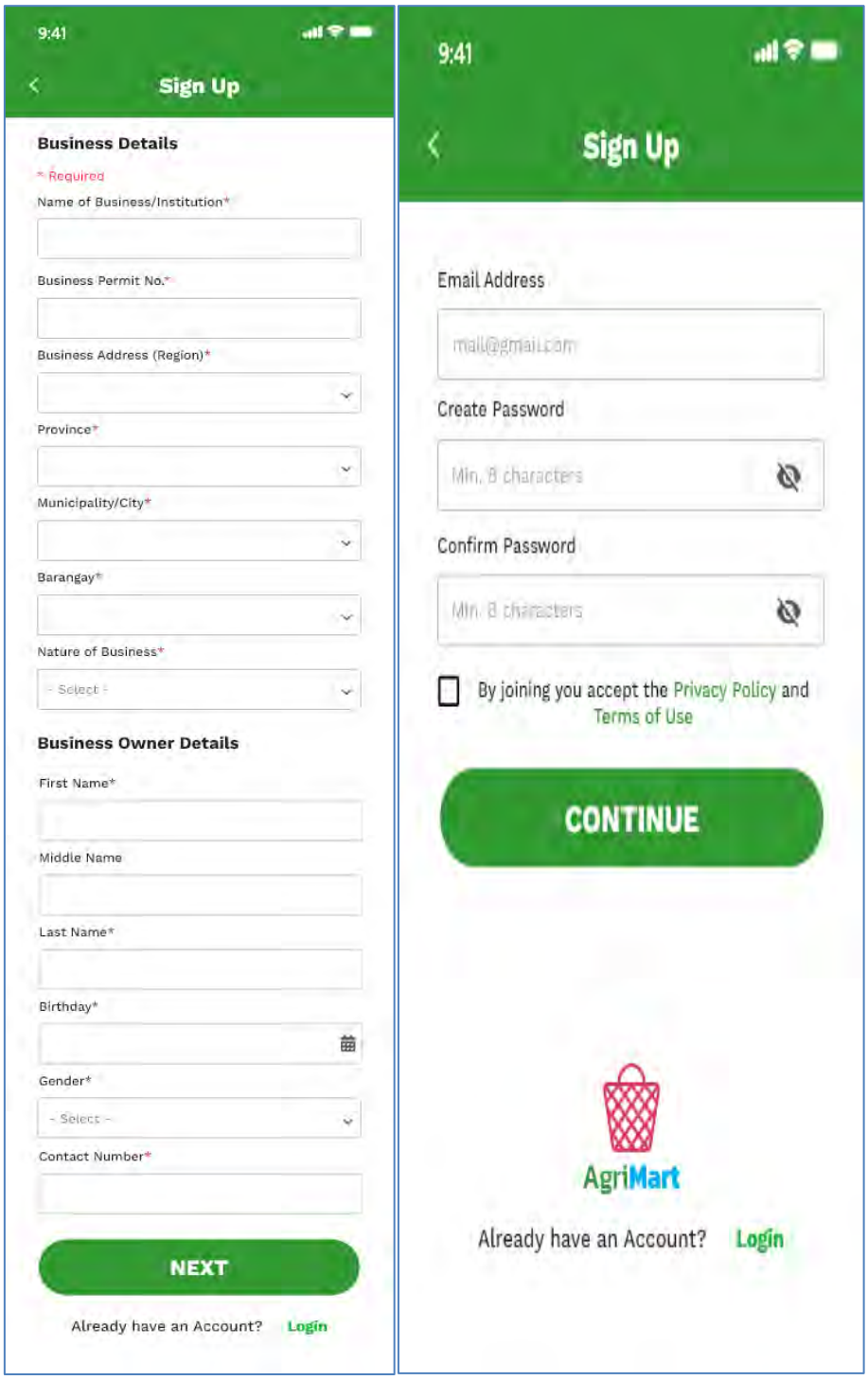


Figure 27. AgriMart Account Registration

As a Buyer/Trader I want to pre-order vegetables to AgriMart.

Acceptance Criteria:

- Choose a delivery date
- Browse crops category
    - Lowland vegetable
    - Highland vegetable
    - Spices
- View Crops and input crop specification
    - Variety
    - Quality
    - Quantity
- Add to Crate and Choose an option
    - Go to your Crate
    - Continue Pre-Ordering
- My Crate List
    - Click continue to view delivery info
    - Click continue to view the pre-order summary
    - Click the check box to Agree to the Terms of Use and Privacy Policy
    - Place Order
    - View electronic Invoice
        - Download
        - Continue
    - Your pre-order has been placed
        - Shop more
        - View check out list
- My Order lists
    - View pre-order list
        - View pre-order details

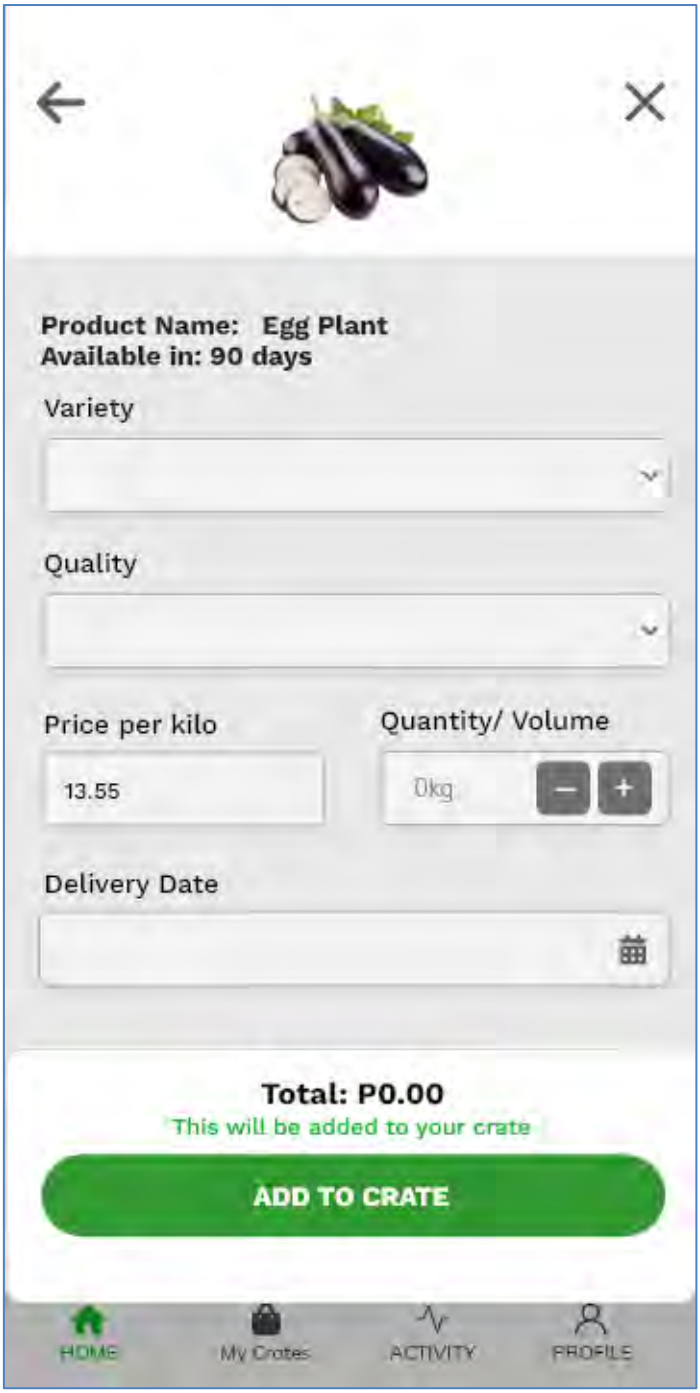


Figure 28. AgriMart Order Placement

Browse crops category

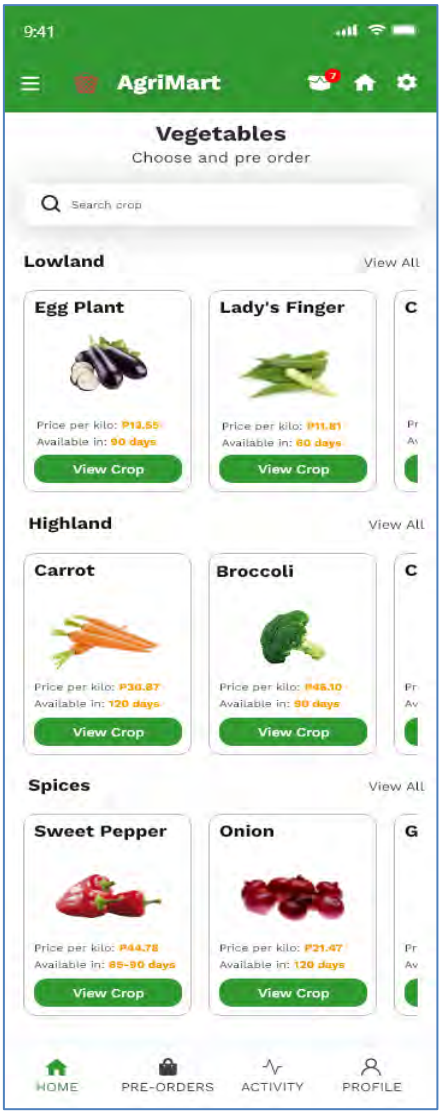


Figure 29. AgriMart Crops Category

Placing a pre order and Adding to Crate.

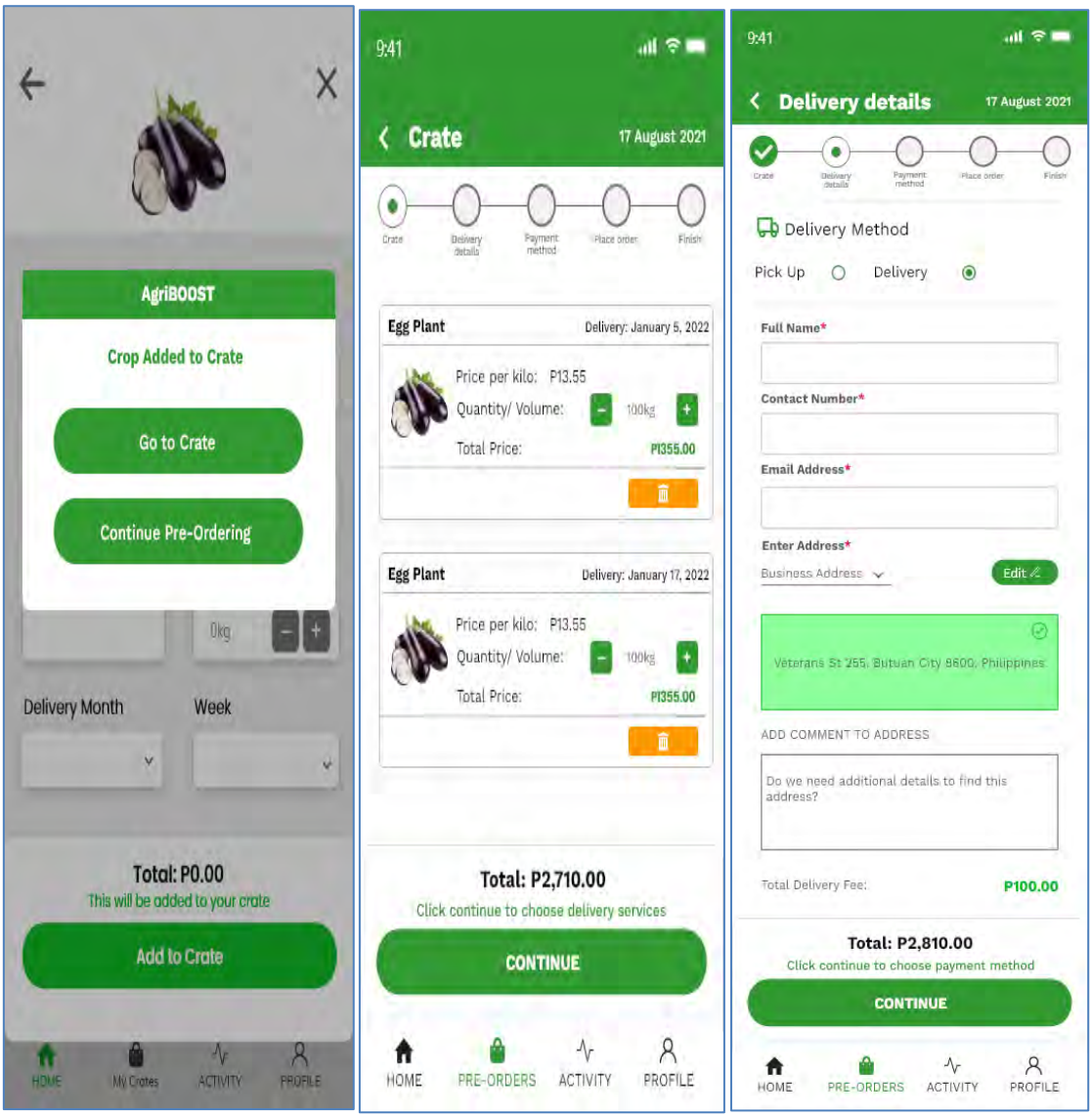


Figure 30. AgriMart pre order and Adding to Crate

Pre-order summary

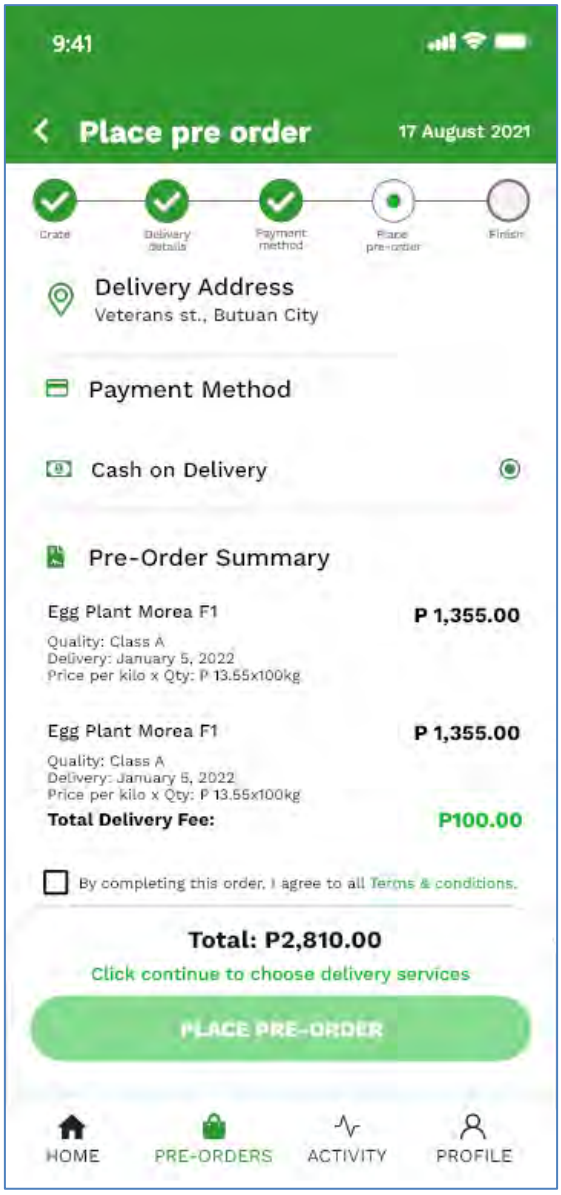


Figure 31. AgriMart Pre-order Summary

Pre-order list **Order Details**

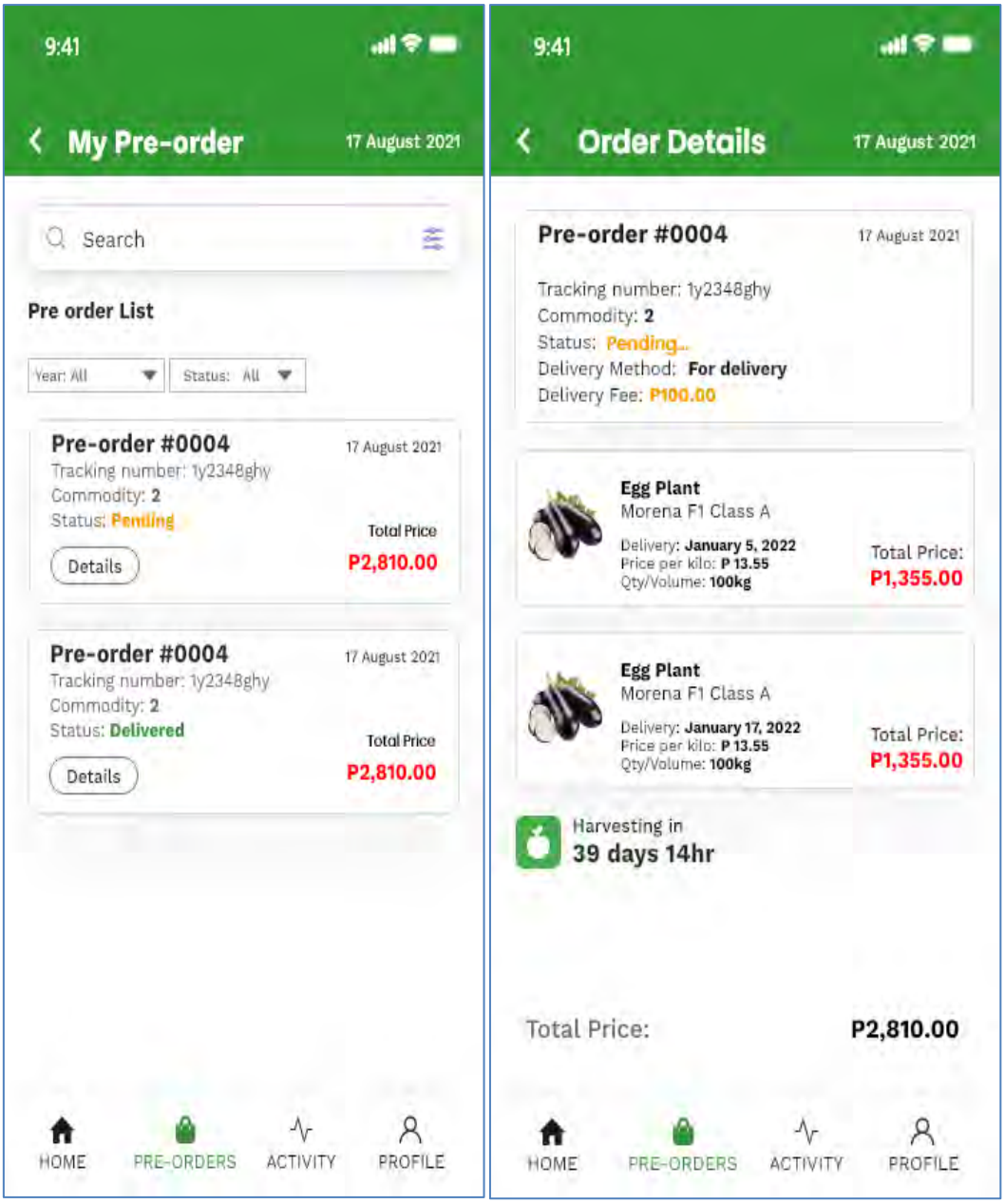


Figure 32. AgriMart pre order list and details

AGRIHUB

As an Agrihub Operator, I want to view all user accounts and view specific details so that I can review all the users of AgriBloom and AgriMart.

Acceptance Criteria:

- Login AgriHub web app
- Access to users
- Table views for farmer
  - Last Name
  - First Name
  - Province
  - City/Municipality
  - Barangay
  - Gender
  - Contact Number
- Table views for Buyer
  - Last Name
  - First Name
  - Gender
  - Contact Number

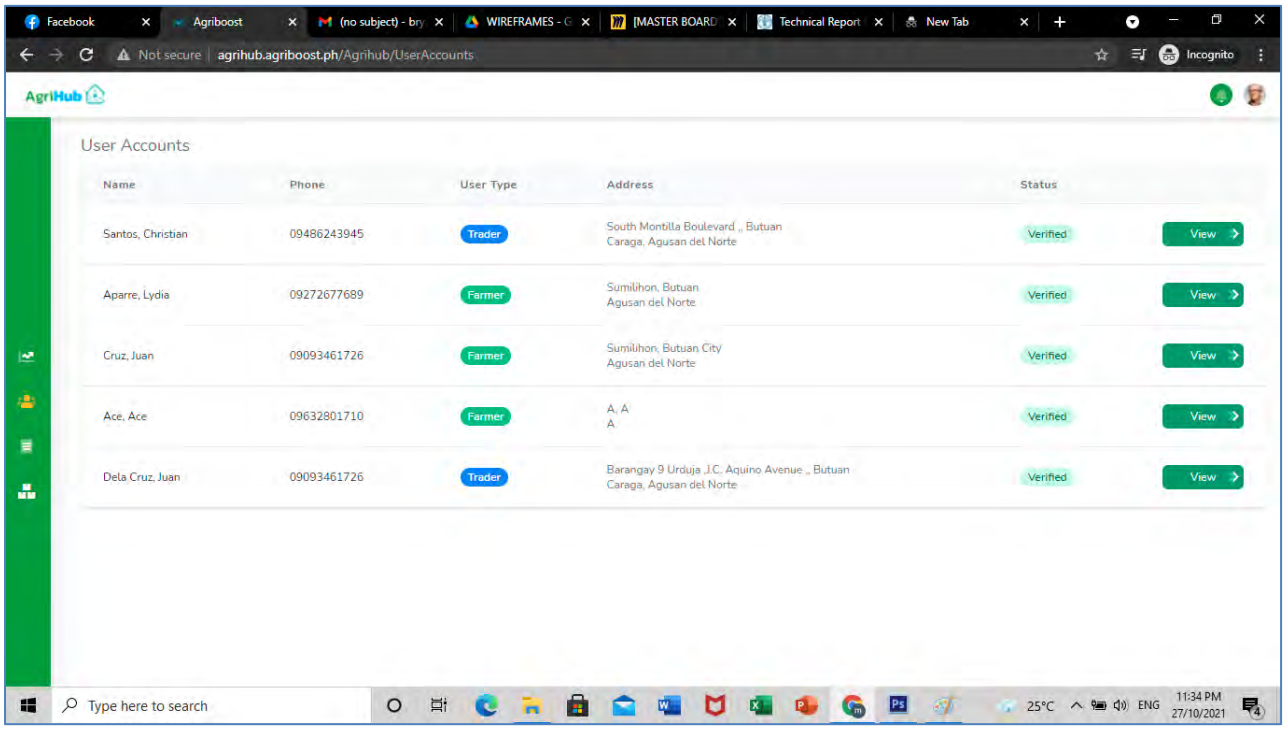


Figure 33. AgriHub User Account's Screen

AGRIHUB

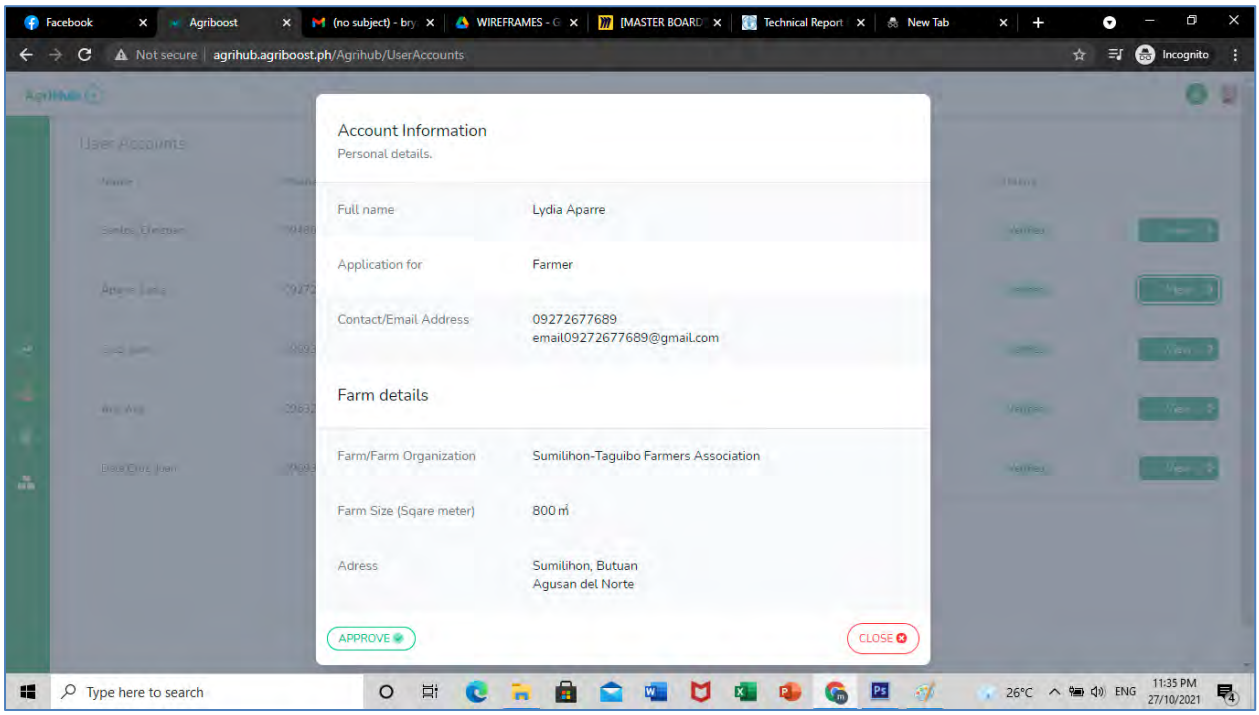


Figure 34. AgriHub Account information Screen

As an Agrihub Operator, I want to view the crops and prices so that I can review the crop details and its prices.

Acceptance Criteria:

- Access to commodities and prices
- Table view
    - Crop Name
        - Crop varieties
        - Crop Quality
    - Crop Price

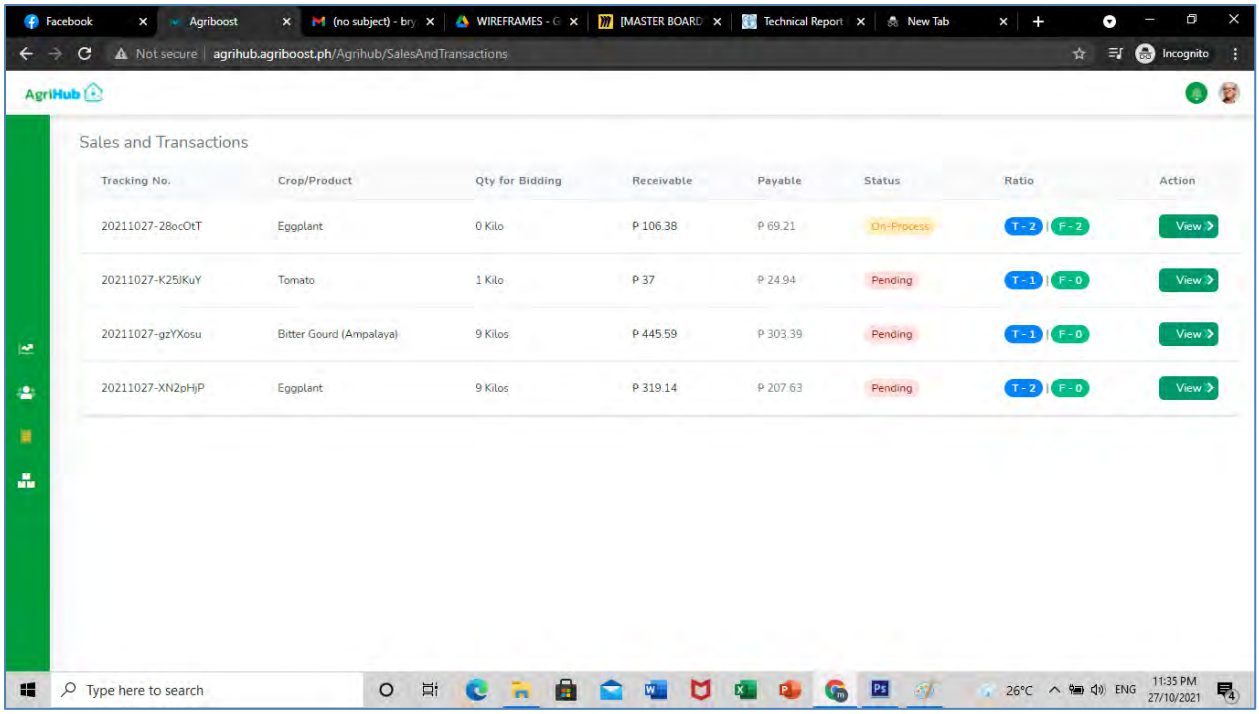


Figure 35. AgriHub Sales and Transaction Screen

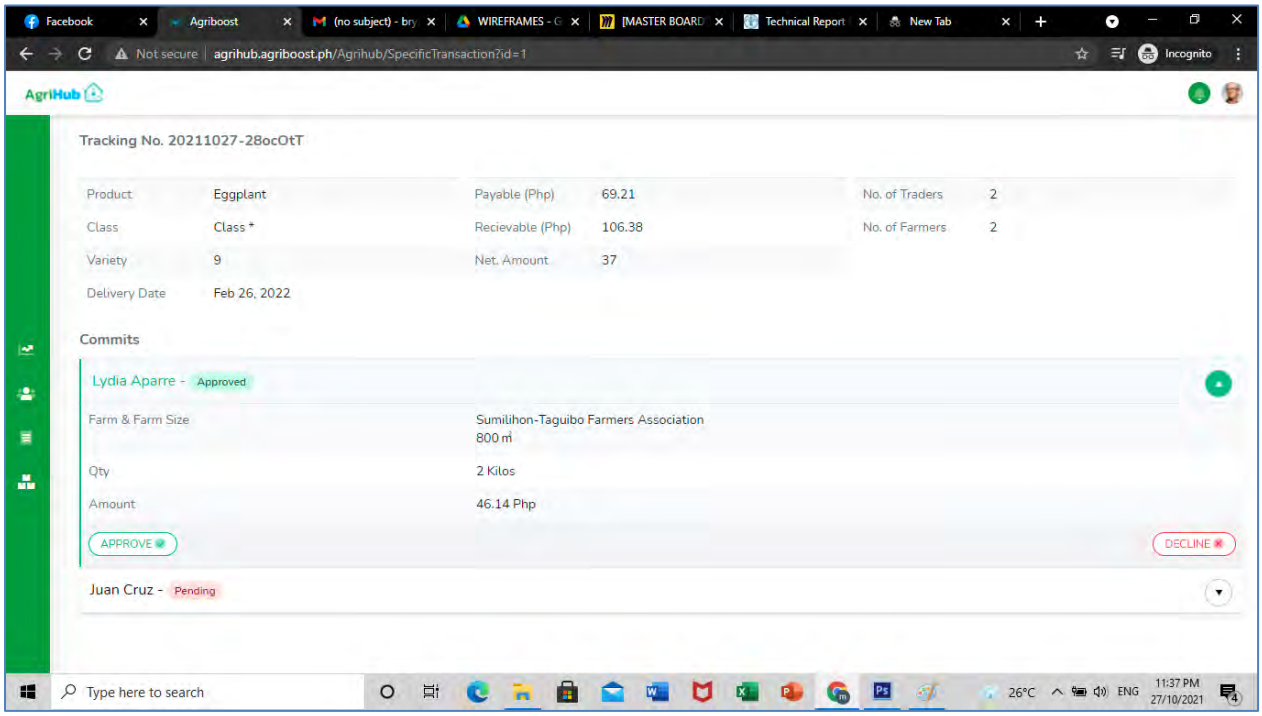


Figure 36. AgriHub Approval of Commitment

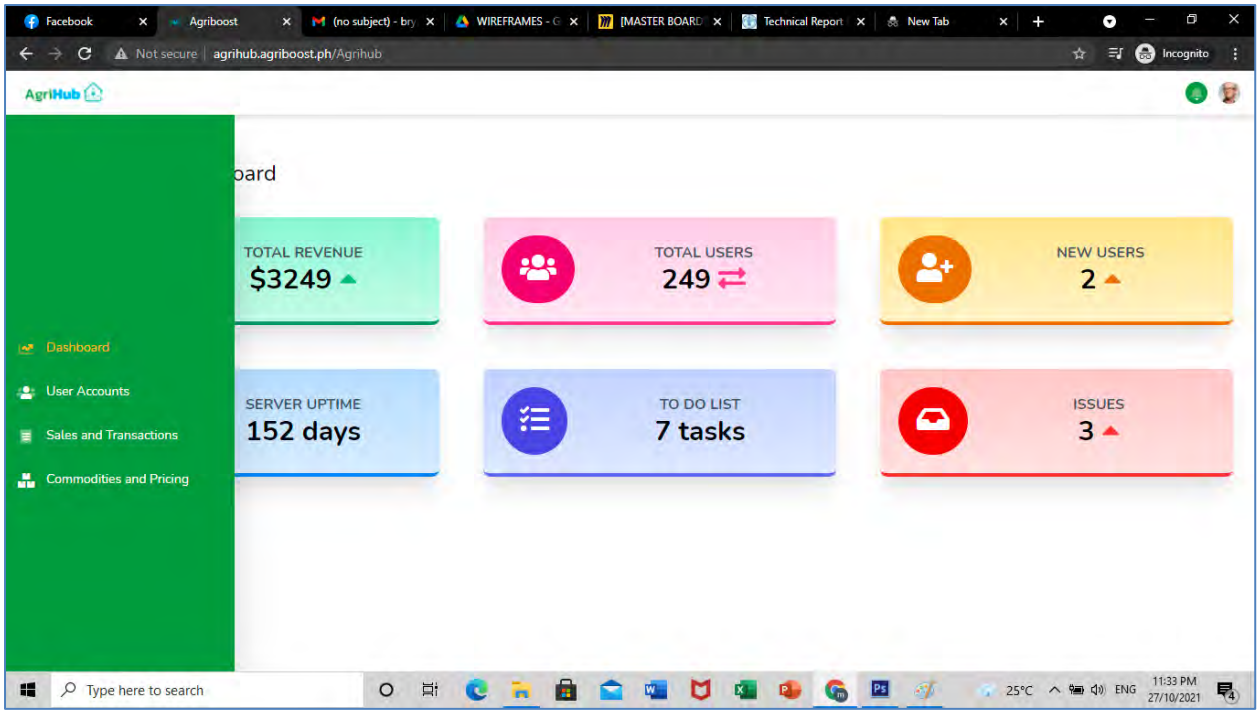


Figure 37. AgriHub Dashboard

USER MANUALS

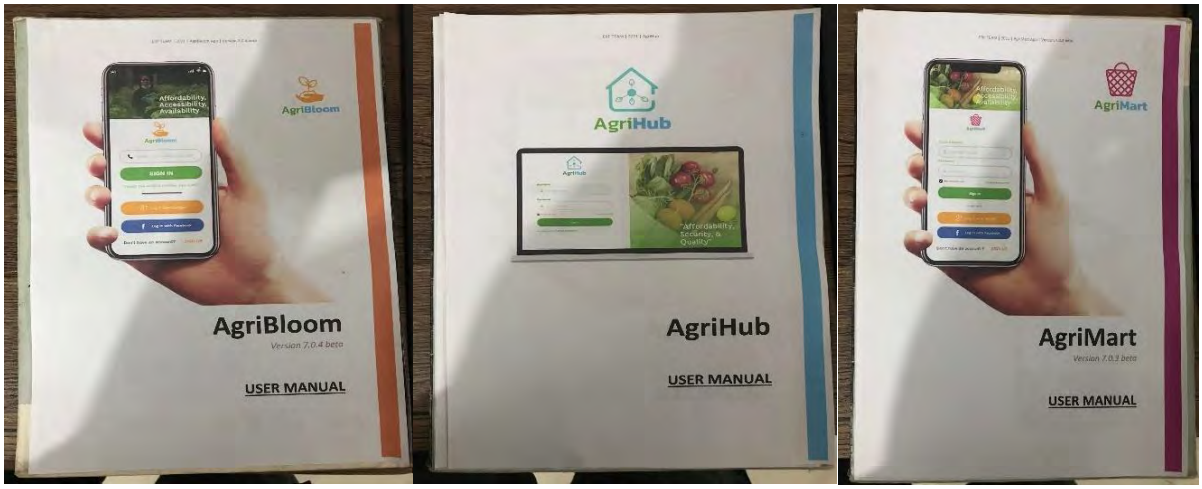


Figure 38. User Manual for AgriHub, AgriBloom and AgriMart

Google Playstore Credentials

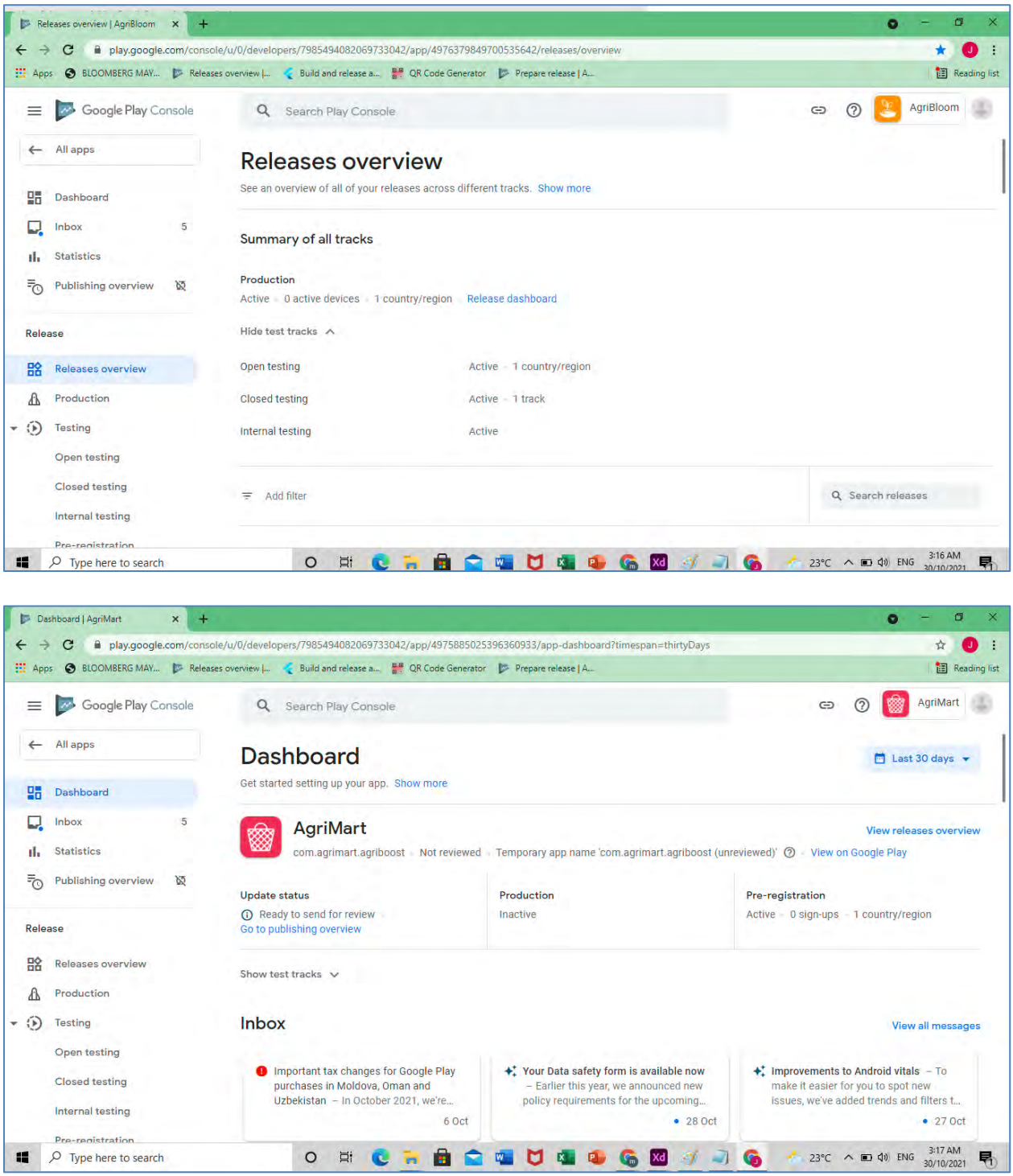


Figure 39. Google Playstore Credentials

Figure 40. Web Host Specification and Proof of purchase

Hello, Jeune Ace MuÃ±oz

You sent a payment of $10.00 USD to DigitalOcean (support@digitalocean.com)

It may take a few moments for this transaction to appear in your account.

Transaction ID
6TN874037E814842D

Transaction date
10 30, 2021 08:21:47 GMT+08:00

Merchant
DigitalOcean
support@digitalocean.com

Instructions to merchant
You haven't entered any instructions.

Shipping address - confirmed
Jeune Ace MuÃ±oz
Felipe Extension 830 Luz Village
Brgy. Bayanihan
Butuan City
8600 AGUSAN DEL NORTE
Philippines

Shipping details
The seller hasnâ€™t provided any shipping details yet.

Description	Unit price	Qty	Amount
Payment for Digital Ocean from City Government of Butuan Make a One-Time Payment: Pay10	$10.00 USD	1	$10.00 USD
Subtotal			$10.00 USD

Total	$10.00 USD
Payment	$10.00 USD

Charge will appear on your credit card statement as "PAYPAL *DIGITALOCEA"

Payment sent to support@digitalocean.com

Funding Sources Used (Total)

Visa x-0185	P527.87 PHP

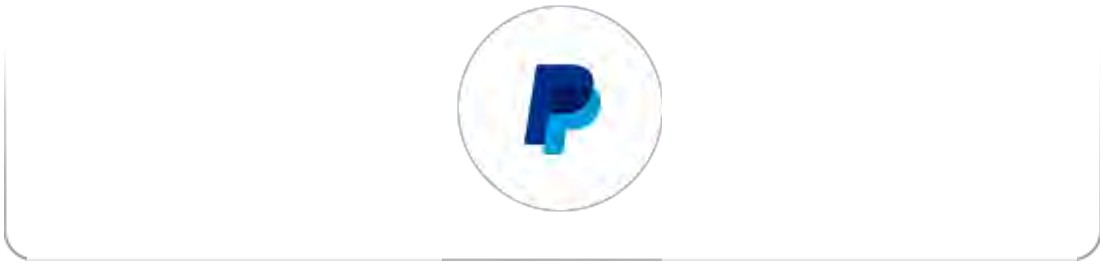
PayPal's Conversion Rate: 1 PHP = 0.0189438 USD

Converted From:	P527.87 PHP
Converted To:	$10.00 USD

This rate includes a currency conversion fee.

Issues with this transaction?

You have 180 days from the date of the transaction to open a dispute in the Resolution Center.



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PayPal is committed to preventing fraudulent emails. Emails from PayPal will always contain your full name. Learn to identify phishing

Please don't reply to this email. To get in touch with us, click **Help & Contact**.

Not sure why you received this email? Learn more

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PayPal Pte. Ltd. ("3PL") has applied for a license under the Singapore Payment Services Act ("PS Act") with the Monetary Authority of Singapore. During this

statutory transitional period, 3PL is operating under an exemption from holding a license and is allowed to continue to provide specific payment services.
PayPal RT000016:en_US(en-PH):1.1.0:f379034a91495

APPLICATION PROGRAMMING INTERFACES

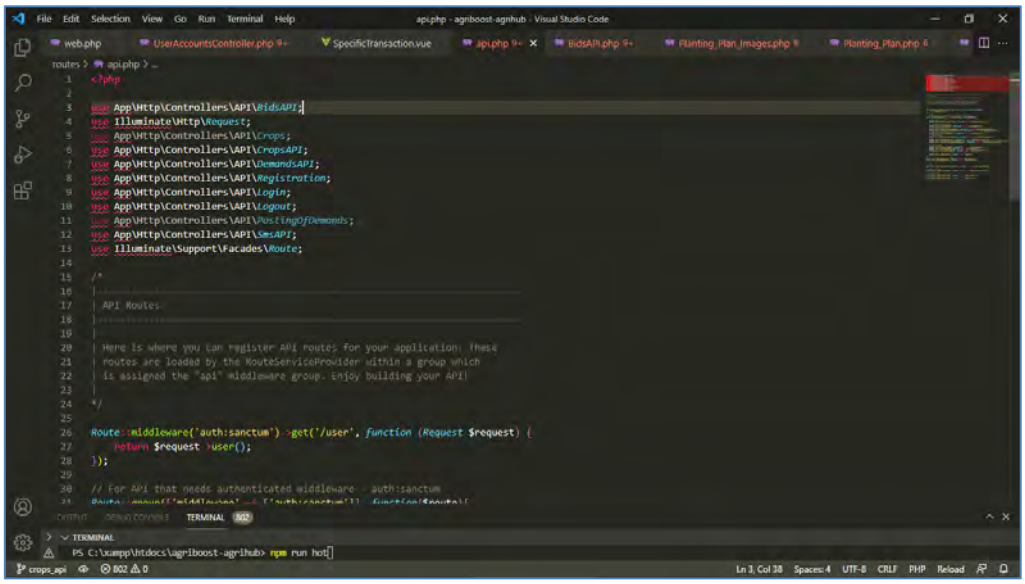

Figure 41. API (Application Programming Interface)

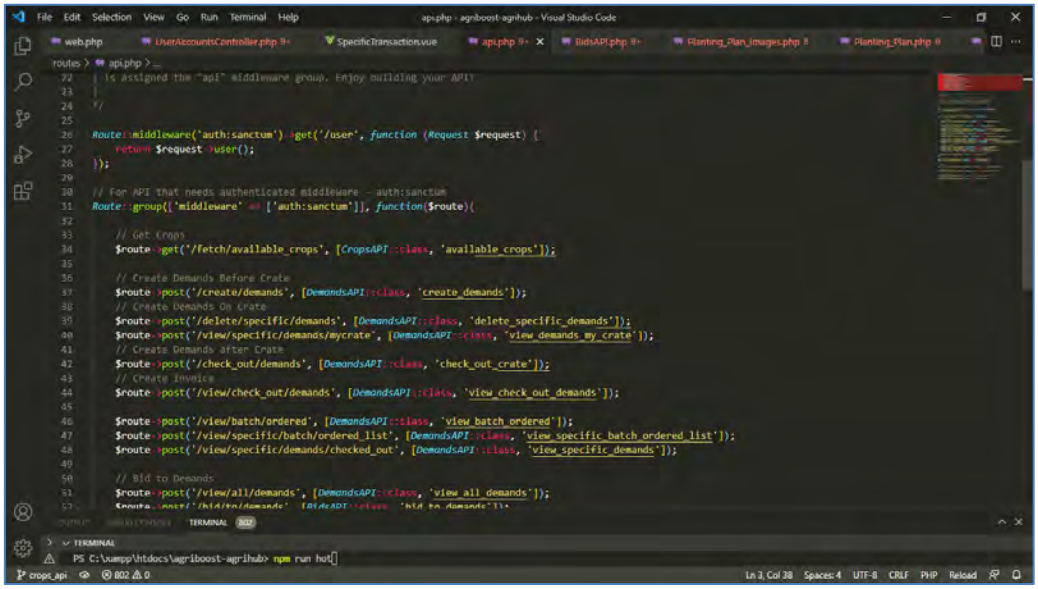

Figure 41.1.API (Application Programming Interface)

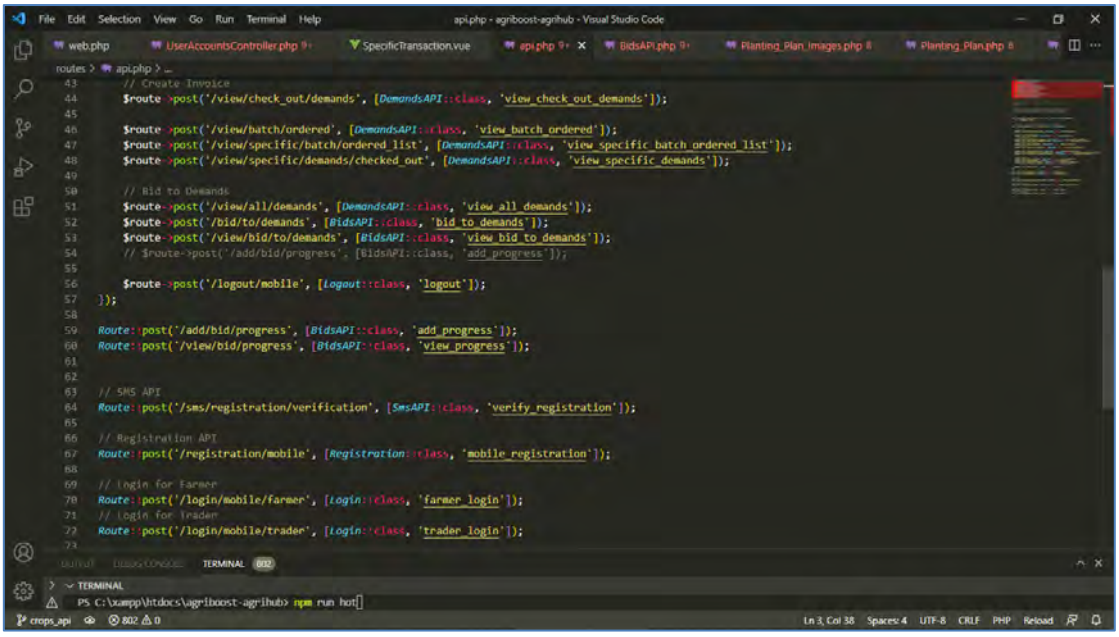

Figure 41.2. API (Application Programming Interface)

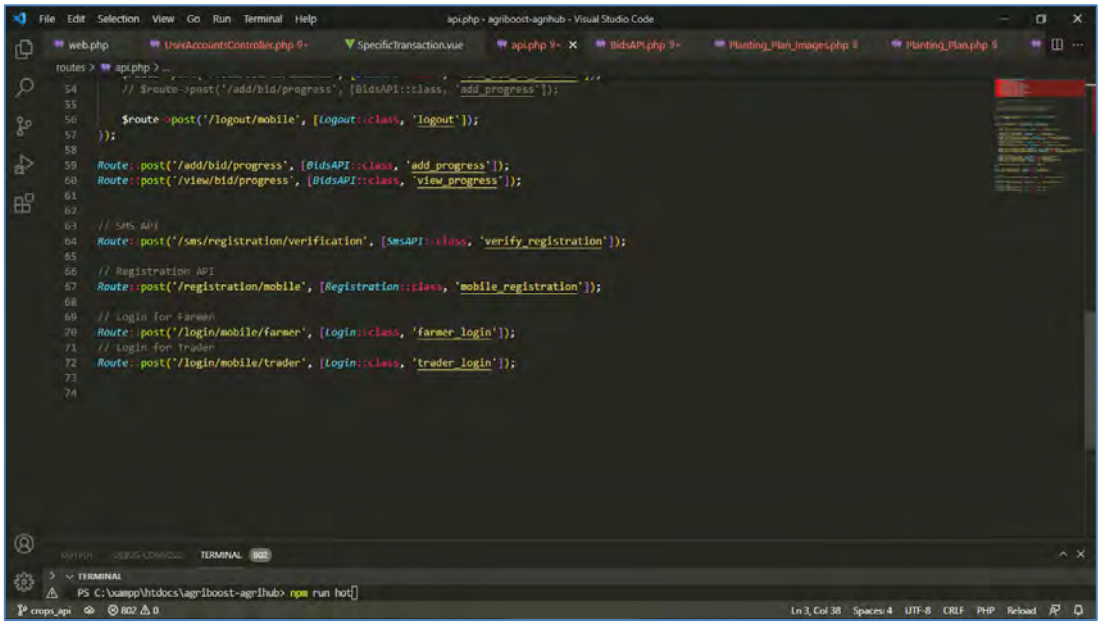

Figure 41.3. API (Application Programming Interface)

CHAPTER 4: RECOMMENDATIONS

Recommendations

The Team recommends the following indicators for Data Analytics.

1. **Productivity:** Increase in Production, Estimated production potential, fertilizers per output, chemicals per output, yield per hectare, total plant number, and field utilization rates, Plants per hectare, Farmer's efficiency.

2. **Finance:** Cash flow, Total sales, Average order value, Total Transaction, Product Sales

3. **Inventory:** Production cycle time, supply and demand forecast

4. **Impact Analysis:** Changes in productivity by women farmer and men farmer who are actively supplying vegetables in the AgriHub (Gender Equality and Women Empowerment); Changes in income by women farmer and men farmer who are actively supplying vegetables in the AgriHub (Gender Equality and Women Empowerment); Number and percentage of women and men trained annually by AgriBloom (Gender Equality and Women Empowerment); Number and percentage of poor women and men with increased access to markets as supplier of vegetables (Gender Equality and Women Empowerment); Changes in Number and Percentage of farmer who are actively supplying vegetables in the AgriHub and are living below the national poverty line. (Economic Recovery and Inclusive Growth); Changes in number and percentage of farmer who have access to financial services (Economic Recovery and Financial Inclusion).

The project should determine and define technological constraints and clear out what processes should be implemented.

Sustainability and Upgrade

After the accomplishment of this project, the remaining task will be the preparation of user manual for the AgriHub Administrator and Farmer. Annual training for farmers and Agrihub users will be conducted. This project will provide a sustainable service because it is very user-friendly and is a cloud-based application. If necessary, the ERP System can be upgraded to handle Big Data Analytics and Farm mapping. It may be upgraded to insightful mechanisms such as cost of production analysis, prediction modelling, impact analysis, credit and risk report (for farmers) and GIS farm mapping.

Proposed ERP Phase 3

Deliverables	No. of Days
Data Analytics (For Impact Analysis)	35
Data Analytics (For Demand Forecast)	20
Data Analytics (For Financial Management e.g. Total Sales, Average Order Value, Sales and etc.)	20
Price Adjustment Model	7
Farmer Profiling and Automated Remaining farm size calculation	7
Software Maintenance	To be discussed

Submitted:

Name: **REV. FR. JOHN CHRISTIAN U. YOUNG, S.Th.D**
Position/Title: University President
Organization: Father Saturnino Urios University (FSUU), Inc.
Date Signed: 10/31/21

Approved:

Name: **PIERRE ANTHONY D. JOVEN**
Position / Title: City Agriculturist, City Government of Butuan
Designation: City Bloomberg Project Team Leader
Date Signed: October 31, 2021