A Course Requirement Presented to the Faculty of the
College of Computer and Information Science
Mapua Malayan Colleges Mindanao
Davao City
Bachelor of Science in Computer Science

ECOBRIDGE –
PROTOTYPE DOCUMENTATION

In Partial Fulfilment of the
Academic Requirements for the Course
CS152: HUMAN COMPUTER INTERACTION

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I. Introduction

Background of the Study

In the Philippines, there is a disconnect between young people and the agricultural industry due to their lack of interest in this sector. This lack of engagement from young people may lead to a dwindling workforce and a lack of innovation in the agricultural scene. Many of them perceive farming as a low-paying career with limited opportunities for advancement leading them to enter other industries. The lack of knowledge and awareness in modern agriculture practices is another reason for the lack of participation. And because of this disconnect, the developers decided to create EcoBridge to bridge the gap between agriculture and the youth. The aim of this app is to create a platform that can educate the youth and millennials about agriculture, empower existing farmers and support the general public's interest in sustainable farming and local produce.

Statement of the Problem

There is a growing disconnect between young Filipinos, and the agricultural industry.

The lack of interest and negative perceptions from younger people where they think farming is not profitable discourages them from entering this sector. This disconnect may lead to a lack of workforce in the industry which can threaten agricultural productivity and food security. The lack of young minds entering this sector also hinders innovation and adoption of modern farming techniques, keeping the sector reliant on outdated practices.

Limited digital access to agricultural information

Traditional methods of agricultural education often fail to reach millennials who rely heavily on digital platforms for information. This lack of accessible and engaging online resources hinders their understanding of modern farming practices and career opportunities within the sector.

Inefficient marketing system

Some farmers face economic hardships due to several factors. One would be the reliance on middlemen who take a significant cut of the profits. This greatly reduces

their income, hindering their ability to invest in advancements and improve their production.

Assumption of the Study

To bridge the gap between young Filipinos and the agricultural sector, EcoBridge offers solutions that address the lack of digital access and disconnect from agriculture. The app provides engaging and accessible educational resources that can combat the lack of digital access and negative perceptions on agriculture. Furthermore, EcoBridge facilitates communication and knowledge sharing between farmers and young people which can bridge the disconnect of young Filipinos and agriculture. The marketplace also allows farmers to reach a wider audience and bypass middlemen allowing them to keep a greater cut of their sales. Key features of this app include an interactive marketplace, forums for knowledge sharing and educational resources like videos and news all tailored to enhance engagement and participation in the agricultural sector.

Significance of the Study

Young Filipinos: The primary purpose of this app is to educate and help attract young Filipinos to enter the agriculture scene.

Farmers: This app also aims to empower farmers by allowing them to share their knowledge and learn new techniques at the same time. The app also allows farmers to sell their produce, helping them reach a wider audience.

General public: This app is also targeted to the general public as they can also benefit from the educational materials and the market place the app offers.

II. Research Design
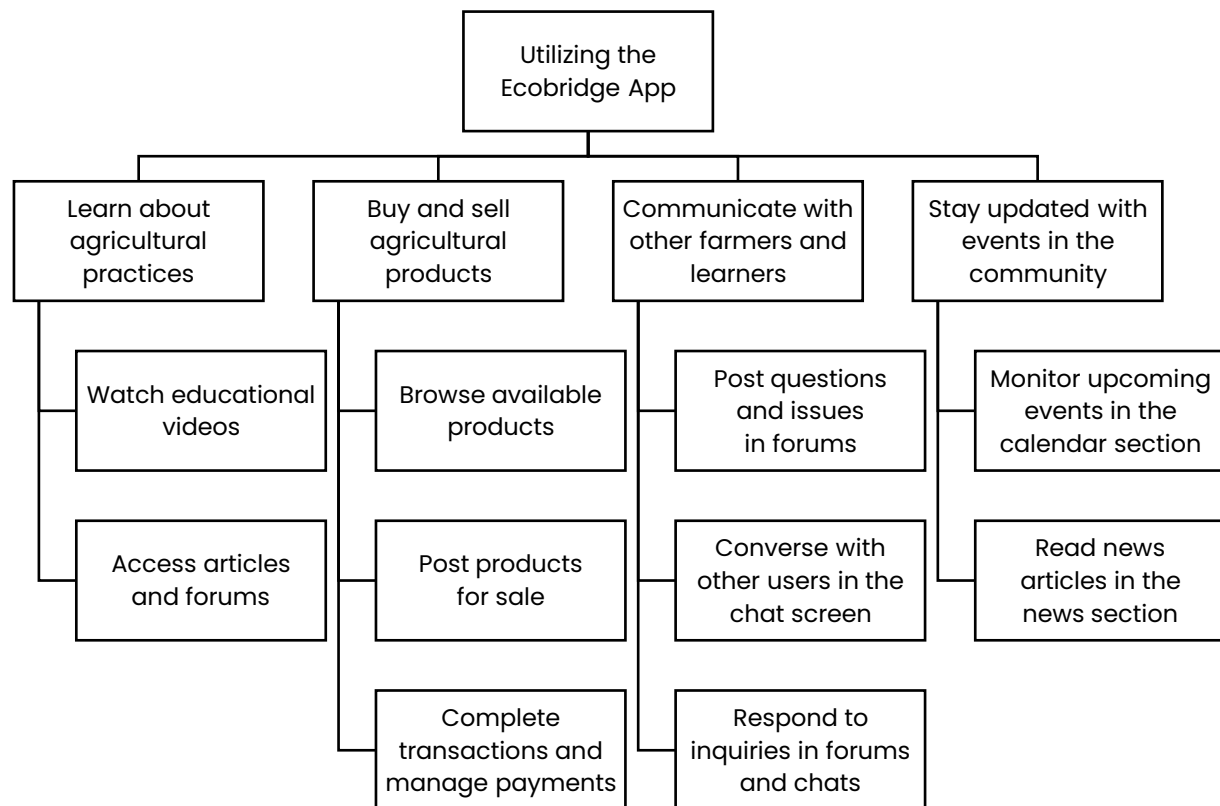
Task Analysis

Characteristics of Tasks Performed by Users

- Gathering information on agricultural practices, market prices, and technological advancements.
- Communicating with farmers and other experts for knowledge sharing.
- Buying and selling agricultural products through the marketplace feature.
- Participating in forums to ask questions and seek advice on agricultural issues.

Characteristics of Task Environment

- Variable internet connectivity in rural areas may affect online access.
- Seasonal fluctuations in market prices and agricultural practices.
- Diverse agricultural practices across different regions of the Philippines.

Hierarchical Task Analysis

The hierarchical task analysis (HTA) for utilizing the EcoBridge app outlines the key activities users engage in to enhance their interaction with the agricultural sector. Users begin by accessing educational resources such as videos and articles to learn about modern farming practices, supplemented by participation in forums for knowledge exchange. The app facilitates buying and selling agricultural products through features that allow browsing, posting listings, and managing transactions. Communication with peers and experts is facilitated through forums and a chat interface, where users can post questions, engage in discussions, and respond to inquiries. Additionally, users stay informed about community events through a calendar feature and news updates available within the app. This structured breakdown supports users in effectively utilizing EcoBridge to access information, engage with the community, and participate actively in agricultural activities.

Requirements Gathering

Gathering Techniques

In this project, gathering the necessary data was a critical step to ensure the proposal was well-informed and aligned with the needs of the target users. The researchers employed several methods to collect this data, including prototyping and interviews for user feedback. Here's how each method was utilized:

Prototyping. Prototyping was used to create a tangible representation of EcoBridge, allowing the researchers to visualize and test their ideas in a real-world context. By developing a prototype, they were able to simulate the user interface and functionalities of the platform, which helped in identifying potential issues and areas for improvement early in the development process. This method also facilitated direct feedback from users as they interacted with the prototype, providing insights into their needs and preferences. Through iterative refinement of the prototype, the researchers ensured that the final design was user-centered and functional.

Interviews. The researchers conducted interviews with potential users to gather qualitative data and user feedback. The structured interviews covered various aspects of the platform, such as usability, functionality, and perceived value. The feedback obtained from these interviews was instrumental in shaping the requirements and

features of EcoBridge, ensuring that it effectively addresses the real-world problems faced by the target users.

User Requirements

From the users' perspective, the primary requirements included:

- **Ease of Use**: The platform should be intuitive and easy to navigate for users with varying levels of technological proficiency.
- **Access to Information**: Users need timely and accurate information on market prices, best practices, and technological advancements.
- **Financial Tools**: Features that help in managing finances and reducing reliance on middlemen are crucial.
- **Support and Training**: Access to resources and support for learning how to use new technologies and practices.

Functional Requirements

The functional requirements identified for EcoBridge include:

- **User Registration and Profile Management**: Allow users to create and manage their profiles.
- **Market Price Updates**: Real-time updates on market prices for various crops.
- **Communication Tools**: Features for direct communication between farmers, experts, and buyers.
- **Resource Library**: A repository of articles, videos, and tutorials on best agricultural practices and new technologies.

Data Requirements

To support its functionalities, EcoBridge requires:

- **User Data**: Information such as user profiles, preferences, and activity logs.
- **Market Data**: Real-time data on market prices, demand, and supply trends.
- **Content Data**: A database of resources, including articles, videos, and tutorials.
- **Feedback Data**: User feedback and interaction data to continuously improve the platform.

Environmental Requirements

EcoBridge must operate in environments with:

- **Low Bandwidth**: Optimized for areas with limited internet connectivity.
- **Mobile Accessibility**: Accessible on smartphones and other mobile devices.
- **Offline Capabilities**: Some functionalities should be available offline to support users in remote locations.

Usability Requirements

To ensure a positive user experience, EcoBridge must:

- **Have an Intuitive Interface**: Simple and easy-to-use design.
- **Offer Multilingual Support**: Support for local languages to cater to diverse user groups.
- **Provide Quick Access to Key Features**: Minimize the number of steps needed to perform essential tasks.
- **Include Help and Support Features**: Easily accessible help resources and customer support.

Storyboarding and Prototyping

Storyboard
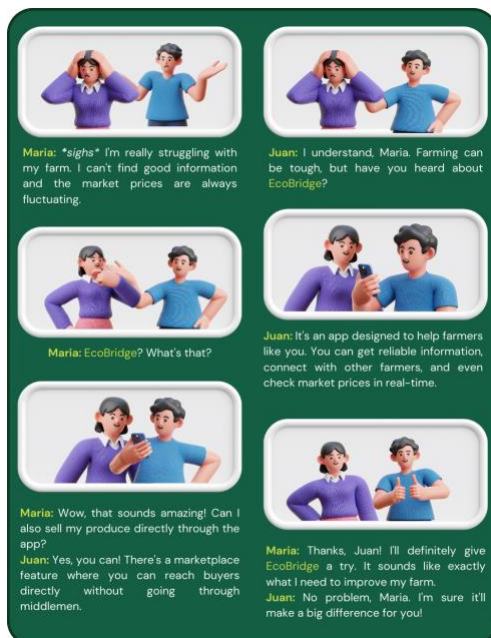
Prototype Frames
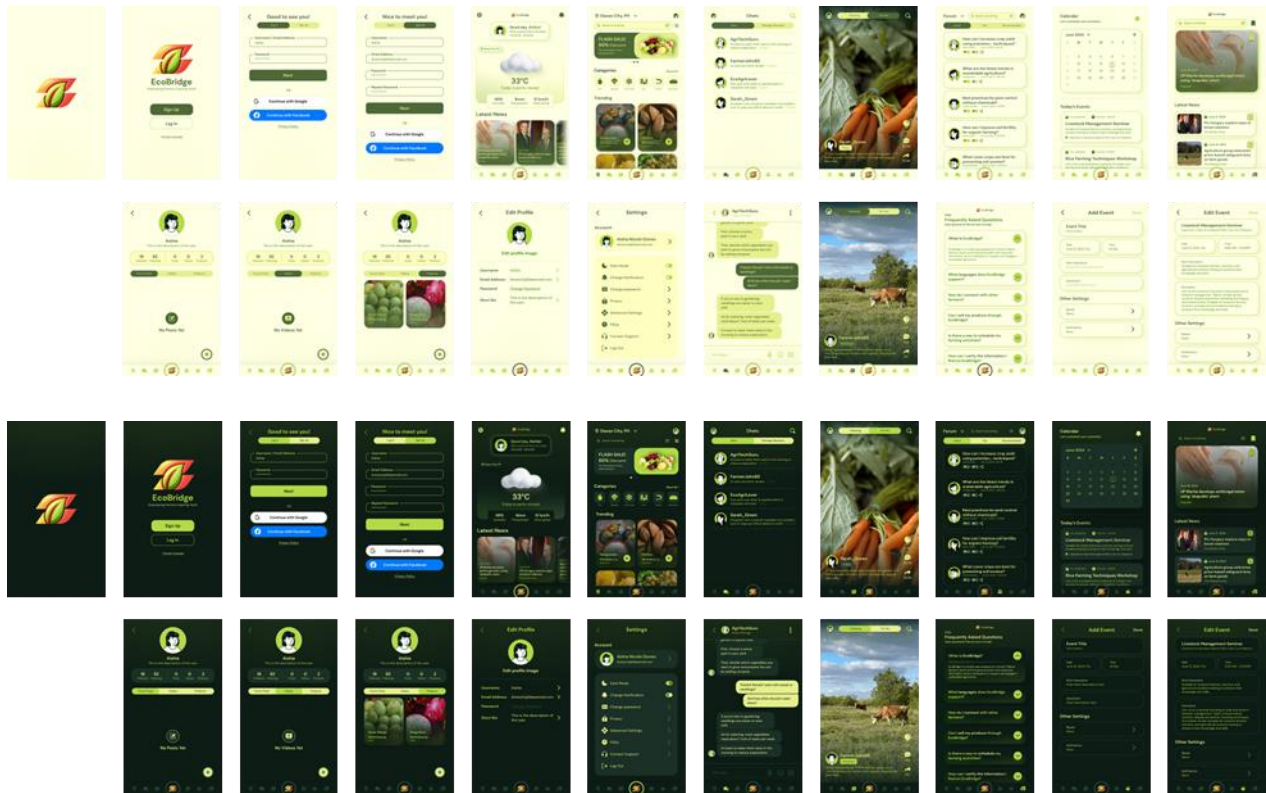
Prototype Flow
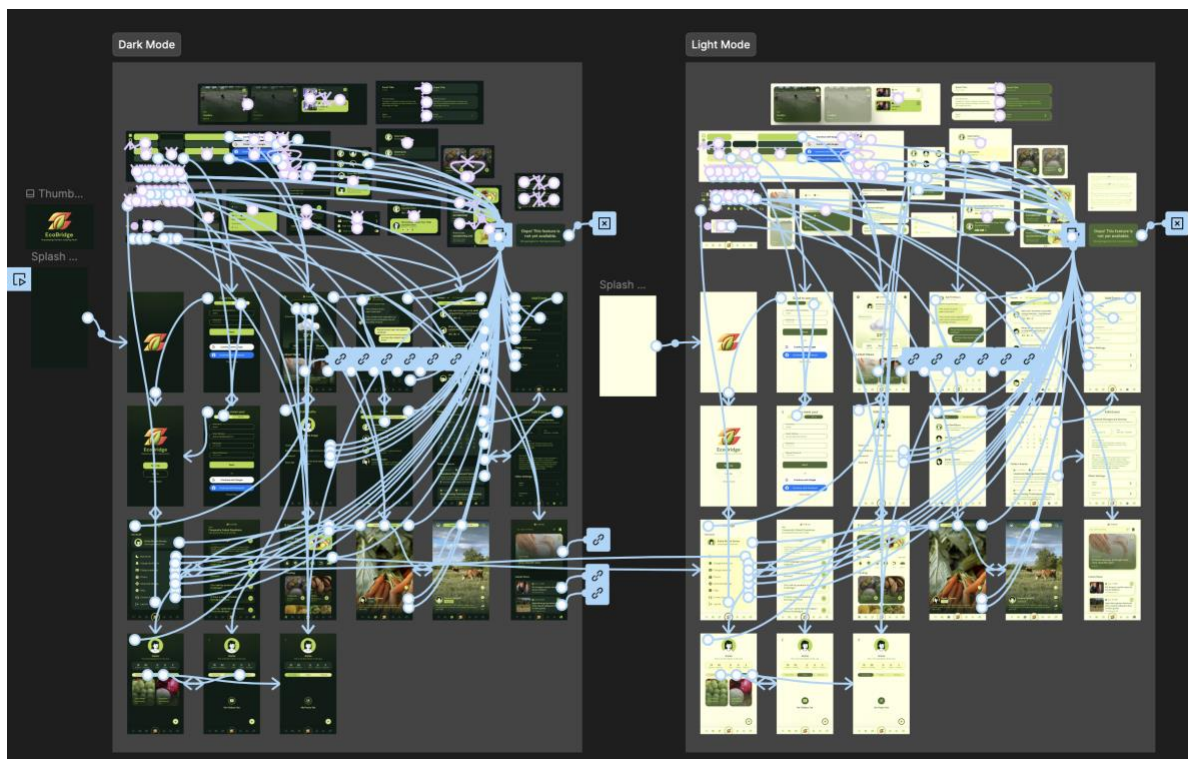
ECORIDGE
USER MANUAL

A comprehensive guide to navigating and maximizing the features of our innovative agriculture app prototype.

Created by AnimaUX
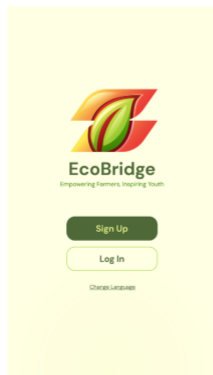
SPLASH
SCREEN

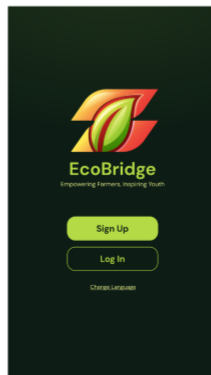### Light Mode

Dark Mode

Upon opening the app, you are greeted with a splash screen that transitions to the title screen, featuring login and sign-up buttons.
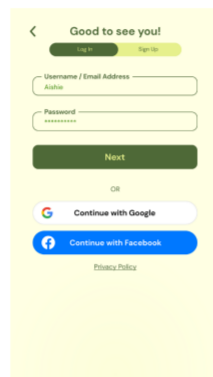
TITLE
SCREEN

Light Mode

Dark Mode

EcoBridge
Empowering Farmers, Inspiring Youth

Sign Up

Log In

Change Language

LOG IN
SCREEN

Light Mode   ### Dark Mode
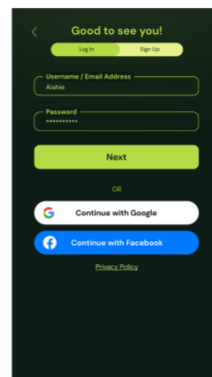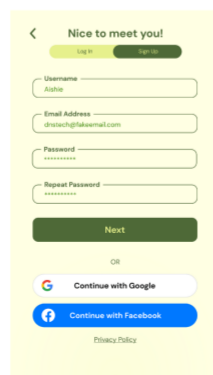
From the login and sign-up screens, you can easily switch between them by clicking the respective "Log In" and "Sign Up" buttons. To return to the title screen, simply click the '<', left angle bracket, button. Clicking 'Next' will take you to the Home Screen.

SIGN UP
SCREEN

Light Mode   ### Dark Mode

HOME
SCREEN

Light Mode
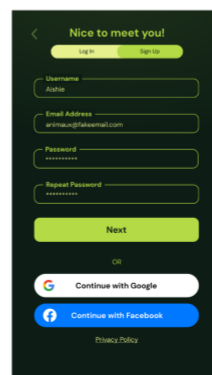
Dark Mode

The Home Screen includes the following features:

- Top Section:
  - **Settings Button:** Leads to the settings screen.
  - **Notifications Button:** Currently not functional.
- Profile Widget:
  - **View Profile:** Leads to the user's profile screen.
  - **Edit Profile:** Leads to the edit profile screen.
- Middle Section:
  - **Current Weather:** Displays the current weather based on your location.
- Latest News:
  - **Latest Agriculture News:** Shows the latest news regarding agriculture. Clicking on an article will redirect you to the news source for the full article.
- Bottom Navigation Bar:
  - **Marketplace:** Navigate to the marketplace.
  - **Chats:** Access the chat screen.
  - **Videos:** Browse videos.
  - **Home:** Return to the home screen.
  - **Forum:** Participate in forums.
  - **Calendar:** View and manage events.
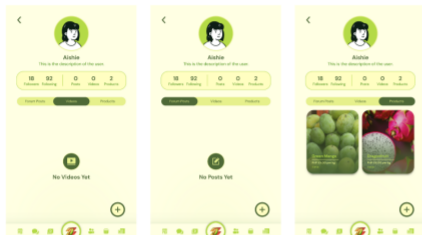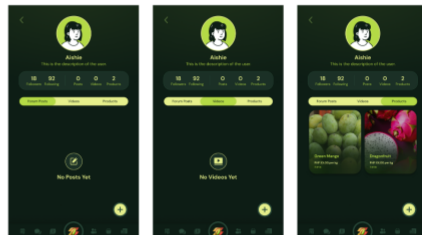 - **News:** Access the news section.

PROFILE
SCREEN

Light Mode

Dark Mode

On the Profile Screen, you can view the following:
- Number of followers
- Number of people you are following
- Number of posts, videos, and products you have shared

Additionally, you can browse your:
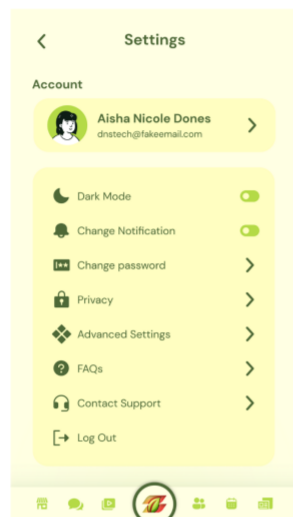- Posts
- Videos
- Products

[On Tap]

You can easily add new content by clicking the '+' (plus) button, allowing you to create new posts, upload videos, and list products.

SETTINGS
SCREEN

Light Mode
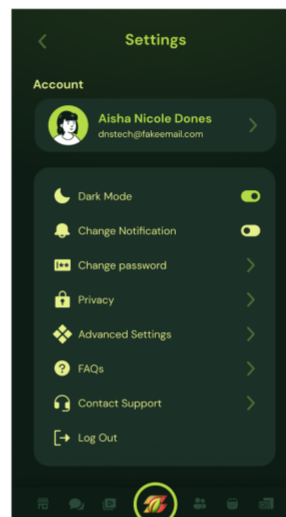
Dark Mode

The Settings Screen has the following options:
- Edit Profile (functional, leads to the Edit Profile screen)
- Dark Mode (Switch) (functional, toggles dark mode)
- Change Notification (Switch)
- Change Password
- Privacy
- Advanced Settings
- FAQs (functional, leads to the FAQs screen)
- Contact Support
- Log Out (functional, logs you out)

Currently, only the **Edit Profile, Dark Mode, FAQs, and Log Out** options are **functional** and lead to another screen.

EDIT PROFILE
SCREEN

Light Mode
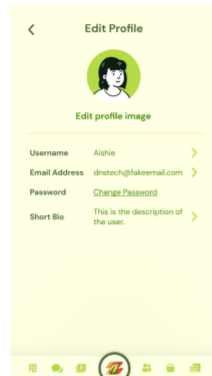
Dark Mode
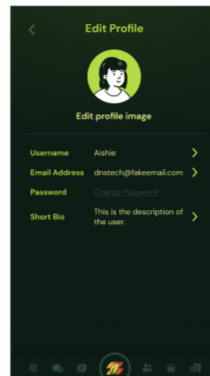
In the Edit Profile section, you can manage your profile details including your profile image, username, email address, short bio, and change your password, although these features are not yet functional in the current version.

FAQs
SCREEN

In the FAQs screen, you can view a list of frequently asked questions. Clicking the 'v' (down angle bracket) expands the accordion to reveal the answer to each question. Conversely, clicking the '^' (up angle bracket) collapses the accordion, hiding the answer.

Light Mode
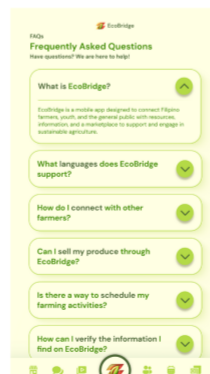
Dark Mode

MARKETPLACE
SCREEN

Light Mode

Dark Mode

On the Marketplace Screen, you'll find several key features:

- **Location and Profile:** Your current location is displayed at the top left, and clicking your profile image at the top right leads you to your Profile Screen.
- **Search and Filter:** Use the search bar to find specific products and the filter button to refine your search criteria.
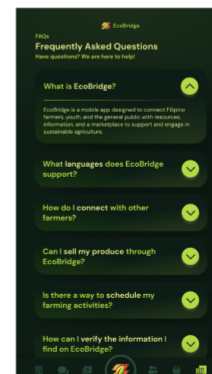- **Cart Access:** Next to the search bar, the cart button allows you to view and manage items in your cart.
- **Product Categories:** Various categories of products are displayed. Click 'Show All' to reveal additional categories.
- **Trending Products:** Below, you can explore trending products with details such as their name, price, and shop/seller name.
- **Adding to Cart:** Click the '+' button next to a product to add it to your cart.

Please note, currently, only the 'view profile' function is fully functional, as other features require additional variables not yet implemented in the prototype.
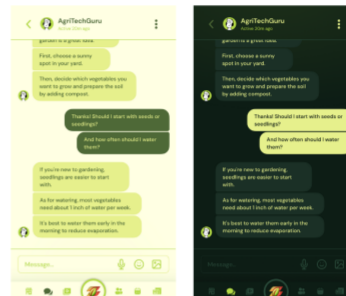
CHATS
FEATURE

CHAT INBOX

On the Chat Inbox Screen, you'll find the following features, though currently only the inbox display is functional:

- **Profile Access:** Click your profile image at the top left to view your profile.
- **Message Search:** Use the search button at the top right to search through your messages.
- **Message Navigation:** Switch between message requests and inbox using dual buttons at the top.
- **Inbox Display:** Messages are sorted with the latest senders shown first. Each message includes the sender's username, a message preview, and the time it was sent.

CHAT

On the Chat Screen, you'll notice several key elements, though currently only the message display is functional:

- **Sender Information:** At the top left, you can see the username of the sender and whether they are currently active.
- **More Options:** At the top right, there is a 'More Options' button for additional actions.
- **Message Display:** Messages sent by you and the sender are displayed, with your messages highlighted in a distinctive color.
- **Message Input Field:** Below the message display, there is a text input field where you can type messages.
- **Media Buttons:** Adjacent to the message input field, there are buttons for sending voice messages, emojis, and images.

VIDEOS
SCREEN

FOR YOU   **FOLLOWING**

On the Videos Screen, you can find the following features, with only the like, follow, view profile buttons, and toggle buttons between 'for you' and 'following' being functional:

- **Profile Access:** Click your profile image at the top left to view your profile.
- **Search Functionality:** Use the search button at the top right to search for videos and users.
- **Section Toggling:** Toggle between 'following' and 'for you' sections using dual buttons at the top.
- **User Information:** At the bottom left, view the profile image and name of the user who posted the current video. You can follow or unfollow them and see the video's caption. Clicking 'See more' reveals the full caption, while clicking the caption hides it.
- **Interaction Buttons:** At the bottom right, use the lightbulb button to indicate learning or liking a video, the comment button to leave comments, and the share button to distribute content.

FORUM
SCREEN

Light Mode   **Dark Mode**

On the Forum Screen, you can explore and interact with various forum posts from other users, though currently only the view profile feature is functional:
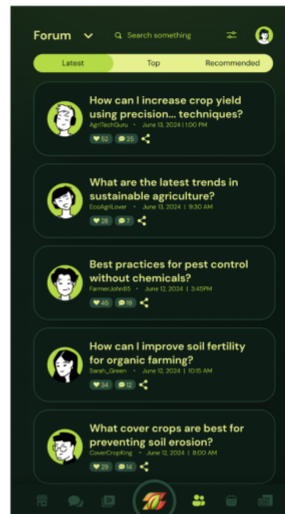
- **Profile Access:** Click your profile image at the top right to view your profile.
- **Search and Filter:** Use the search bar to find specific forum posts and utilize the filter button for refining results.
- **Sorting Options:** Toggle between 'latest', 'top', and 'recommended' forum posts beneath the search bar.
- **Forum Post Display:** Each forum post includes the title, creator's username, date posted, and buttons for liking (heart), commenting, and sharing.

These features allow you to engage with forum content and manage your profile while exploring community discussions on various topics.

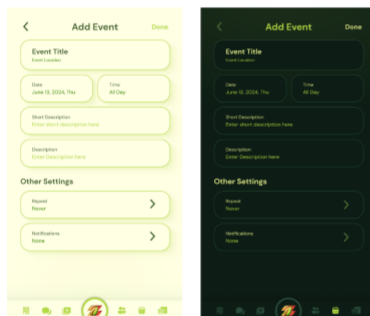# CALENDAR
FEATURE

CALENDAR

ADD EVENT

EDIT EVENT

On the Calendar Screen, you can effortlessly stay updated on agricultural events near you:

- **Event Viewing:** Browse through agricultural events scheduled for the day, even those you didn't add yourself.
- **Notifications (not functional):** Access your notifications using the button at the top right.
- **Add Event:** Use the plus button on the calendar widget to navigate to the Add Event Screen. Here, you can input event details such as title, location, date, time, short description, and more advanced settings like repeat frequency and notifications.
- **Today's Events:** At the bottom of the screen, view today's scheduled events, each displaying details like title, date, time, location, and a brief description.
- **Edit Events:** Clicking on a specific event allows you to edit its details using the Edit Event Screen, ensuring your event information stays current and accurate.
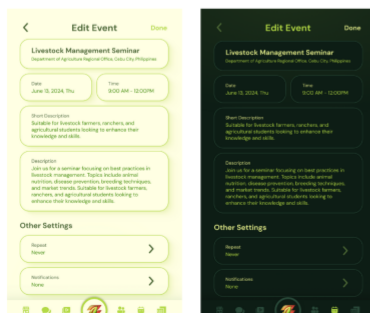
NEWS
SCREEN

Light Mode   Dark Mode

On the News Screen, you can stay updated with the latest agricultural news. Currently, the search bar and bookmark button at the top are not functional. The screen features:

- **Search Bar:** Located at the top for searching specific news topics (not functional yet).
- **Bookmark Button:** Also at the top right to view bookmarked news articles (not functional yet).
- Large Widget: Displays the most recent news article prominently.
- **List of Latest News:** Below the widget, other recent news articles are listed, each showing the date posted, headline, source name, and a bookmark button (not functional yet).

This screen keeps you informed about current agricultural developments and will soon include functionality for personalized news browsing and bookmarking.

OUR TEAM

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Evaluation of Prototype

Evaluation Criteria (Based on the 10 heuristics of design evaluation)

Area of Evaluation	5	4	3	2	1
A. Visibility of System Status - The system design provides appropriate feedback like message prompts in response to user actions. - The message prompts are clear, visible and understandable.	■				
B. Match between the system and the real world - Used words, phrases and concepts according to users' language rather than system-oriented words and computer jargons.			■		
C. User control and freedom - The system design provides ways of allowing users to easily "get in" and "get out" if they find themselves in unfamiliar parts of the system.	■				
D. Consistency and Standards - The colors, text, labels, buttons and other elements in the design are uniform from start to finish**.**	■				
- Text and icons are not too small or too big.		■			
- Menus and other features of the system are arranged and positioned in a consistent way. (For ex. If your website has navigation buttons on the top under the page title on one page, the users will automatically look there for the same features on other pages.	■				
A. Error Prevention - The system design provides an automatic detection of errors and preventing them to occur in the first place.		■			
- Idiot proofing mechanisms are applied	■				
F. Help users recognize, diagnose and recover from errors **-** Error messages and the terms used are recognizable, familiar and understandable for the users.	■				
G. Recognition rather than recall **-** Objects, icons, actions and options are visible for the user. - Objects are labeled well with text and icons that can immediately be spotted by the user and matched with what they want to do.		■			
H. Flexibility and efficiency of use - The system design provides easy to navigate menus.	■				

- the system does not make wasteful time of system resources.					
I. Aesthetic and minimalist design **-**Graphics and animations used are not difficult to look at and does not clutter (mess) up the screen. - Information provided is relevant and needed for the system design.					
J. Help and Documentation **-**the system design provides information that can be easily searched and provides help in a set of concrete steps that can easily be followed.					

III. Conclusion and Recommendation

The system design incorporates several key characteristics aimed at addressing the identified challenges effectively. With a minimalist and clean interface, the design enhances visual appeal and usability. Drawing inspiration from popular apps like Facebook and Food panda (for the marketplace), the layout ensures familiarity for new users, easing the learning curve. This approach facilitates quick adaptation and efficient navigation through features such as the forums, news, marketplace, and chat functionalities, empowering users to explore and engage deeply with the agriculture industry.

To further improve the app's design, the developers recommend having experts or design-focused individuals conduct a heuristic evaluation of the prototype. Leveraging their expertise can provide insightful feedback, helping refine the design. Additionally, sending evaluation forms to experienced individuals can offer a broader range of perspectives and a more thorough assessment of the prototype. Diverse viewpoints are crucial for identifying potential usability issues and design improvements that ordinary users might overlook.

Overall, completing this course provided the developers with valuable insights into project development and the User-Centered System Design lifecycle. It equipped them with essential skills in prototyping, evaluation, and applying UCD principles, vital for designing intuitive and user-centric software solutions crucial for their academic and professional growth.