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'COMMODITY ANALYZER' - A Trading Evaluator

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Abstract: Commodity Analyzer is a mobile application that helps the farmers and traders by providing real-time market prices, predictive analytics, direct communication with buyers, and access to agricultural news. This App includes various features that allow users to make informed decisions, optimize selling techniques, and remain updated on market trends. By providing accurate pricing information and allowing for direct contacts with buyers, the app decreases reliance on intermediaries, lowers the danger of price exploitation, and broadens market access. The implementation of predictive analytics allows farmers and traders to anticipate market volatility and adjust their strategy accordingly, reducing risks and increasing profits. Furthermore, access to agricultural news keeps clients up to date on the most recent advances in farming methods, weather forecasts, and modifications to regulations, allowing them to adjust to fluctuating conditions and maximize productivity. Overall, the mobile app is a transformative tool that uses technology to empower farmers and local traders, earn economic growth, and promote agricultural sustainability.

Index Terms – Farmers, Agriculture, Traders, Mobile app

1. INTRODUCTION

Farming is very important in our society now a days . Traditionally, farmers cultivated the items and sold them in markets. However, farmers are unaware of market prices and new technologies in the marketplaces. So they depend on the middleman for updates in the market. The middlemen grabbed benefits instead of the farmers. This is our existing system. Always having direct communication links with buyers improves market access, allowing users to negotiate reasonable rates and bypass traditional intermediaries, improving revenue and lowering reliance on middlemen. Our agriculture application offers a paradigm shift in the way stakeholders interact with the agricultural value chain. We drive economic growth, support sustainability, and empower communities to succeed in today's agricultural world by providing transparency, market access, predictive insights, and critical information.

2. EXISTING DESIGN AND PROPOSED DESIGN

Current system made up of market merchants, middlemen, and farmers. Farmers and traders do not communicate directly under the current arrangement. Hence, they are forced to depend on the middleman. But this system has lot of disadvantages. The following are the drawbacks of existing System

- Limited Access to Market Information: Many local farmers struggle to get current market information, which makes it difficult for them to decide on crops to grow and how much to charge.
- Uncertainty in Pricing: Farmers and traders may find it difficult to decide when to sell their goods if they are unaware of the current market values.
- Middlemen's exploitation: When there is a lack of transparency in pricing, middlemen can exploit farmers and traders by reducing their prices.

- Limited Access to Technology: Without awareness of new farming technology and techniques, farmers may be unable to improve farm efficiency, production, or sustainability.
- Reduced Competitiveness: Failure to implement innovative farming practices may result in lower yields and quality than competitors who have access to the most recent developments.
- Transportation and Infrastructure Issues: Poor transportation facilities and inadequate infrastructure contribute to higher postharvest losses by making it difficult for farmers to efficiently move and store their products

To address these issues, activities concentrating on pricing transparency, agricultural extension services, and technology transfer are critical for empowering farmers and local traders to make better decisions and enhance their livelihoods. Our platform provides a wide range of features, including real-time market prices, predictive analytics, direct communication with buyers, and access to important agricultural news. The heart of our app is transparency. By offering real-time market prices, users obtain essential visibility into pricing trends, allowing them to make informed decisions regarding when and where to sell their products. So the proposed system is a comprehensive agricultural platform that integrates various features to address the needs of farmers and local traders.

PROBLEM FORMULATION

OBJECTIVES

The proposed Mobile application s a comprehensive agricultural platform that incorporates multiple features to suit the demands of farmers and local traders. We can analyze each component thoroughly

- Daily Market pricing: Sourced from reputable sources including local markets, wholesale marketplaces, and government organizations, this app offers up-to-date information on market pricing for a variety of agricultural commodities.
- Agricultural News: The most recent information on farming methods, pest outbreaks, weather predictions, legislative changes, and market trends is available to users. They are kept up to date on developments that could affect their farming operations through this.
- Direct Chat with purchasers: The app allows farmers/traders to communicate directly with possible purchasers. This feature allows users to negotiate prices, schedule deals, and build long-term relationships with buyers, decreasing their need on intermediaries.
- Pricing Prediction: Using historical pricing data and powerful analytics, the app provides price prediction models for agricultural commodities in the following weeks.
- User-friendly Interface: The app's interface should be simple to use, especially for those with minimal technological knowledge. This enables accessibility for a variety of users, including those in remote areas.

ADVANATAGES

- Improved Decision-Making
- Market Transparency
- Enhanced Market Access
- Knowledge Sharing
- Risk Mitigation
- Convenience and Efficiency

3. METHODOLOGY AND THE APPLICATION DESIGN

The methodology used for designing the app is ‘waterfall model. The waterfall model is a software development methodology that is well suited for this mobile app “COMMODITY ANALYZER”. Waterfall model is characterized by a sequential, linear progression through phases such as requirements gathering, design, implementation, testing, deployment, and maintenance. It assumes that each phase can be completed perfectly before moving on to the next.

The App includes several modules as mentioned below

- Customer Module
- Product Module
- Manager Module
- Seller Module
- Buyer Module

The main functions of Customer Module are the following

- User registration and authentication.
- Profile management which includes update personal information, password, etc.
- View and search listings and find out what are the operations are mentioned
- Contact sellers from the data base and initiate transactions.
- Provide feedback and ratings on transactions.

Product Module was developed for the following functions

- Create, edit, and delete listings.
- Upload product images and provide descriptions of each product
- Set prices for each products and specify the product condition.
- Categorize listings for easy browsing.

Manager Module focusing on the following activities

- It manages Admin dashboard for overseeing platform activities.
- It also manages User management (approve registrations, manage accounts, etc.).
- Listing management (moderation, flagging inappropriate content, etc.).
- Analytics and reporting tools (user activity, popular categories, etc.).

Seller Module focusing on the following facts

- It performs the seller registration and profile setup and list the products for sale.
- Manage listings (view, edit, and delete).
- Communicate with buyers and manage transactions.
- Access sales history and track earnings.

Buyer Module functions are mentioned below

- View and search listings.
- Contact sellers and initiate purchases.
- Track order status and communicate with sellers.
- Provide feedback and ratings on transactions.
- Save favorite listings for future reference

4. DEVELOPMENT OF THE ENVIRONMENT

The software environment for the development of this mobile app is ‘Android Studio’. Android studio is the official integrated development environment for Google's android operating system. It is available for download for on windows, macOS and Linux based operating system.

➢ The code editor helps you write better code, work faster, and be more productive by offering advanced code completion, refactoring, and code analysis.

➢ The Android Emulator installs and starts your apps faster than a real device and allows you to prototype and test your app on various Android device configurations.

➢ You can also simulate a variety of hardware features such as GPS location, network latency, motion sensors, and multi-touch input.

➢ Android Studio includes project and code templates that make it easy to add well established patterns such as a navigation drawer and view pager.

Java is a popular programming language that was built specifically for use in the distributed environment of the internet. It is the most popular programming language for Android smartphone applications, as well as for developing edge devices and the Internet of Things. In the construction of this mobile app, we employ the Java programming language to support the Android environment.

PHP is an open-source, interpreted, object-oriented scripting language that can be run on the server. PHP is ideally suited for web development. As a result, it is commonly used to create web applications. In this app creation, PHP serves as a back-end supporter.

4.1 Developmental Stages of the System

The development of this new system contains the following activities, which try to automate the entire process keeping in the view of database integration approach. User friendliness is provided in the application with various controls provided by system rich user interface. The system makes the overall project management much easier and flexible. It can be accessed over internet. The user information can be stored in centralized database which can be maintained by the system.

The development of a new system improves the application's usability by providing multiple controls through a rich user interface.
All data of vendors, customers, items, and orders will be saved in a centralized database that can be maintained by the system.
The Commodity Analyzer app, created with Android Studio, attempts to streamline procedures by centralizing data storage for sellers, customers, items, and orders. The app's features include real-time agricultural products analysis, flexible reporting, and easy navigation, which improves user experience and productivity. Using these comprehensive features, users can easily manage and evaluate commodities data, thereby enhancing decision-making and workflow efficiency.

The different developmental stages of the app are

1. Define the objectives
2. Identify the user requirements
3. Plan the app's functionality
4. Design the app's user interface
5. Develop the app's backend
6. Integrate with external services
7. Test the app
8. Release the app
9. Maintain and update the app

The Commodity Analyzer app represents a significant advancement in commodity management tools, offering users a powerful yet user- friendly platform to navigate the complexities of the market and make informed decisions.

6. RESULTS AND DISCUSSION

6.1 Sample Screenshots of the Mobile App Development

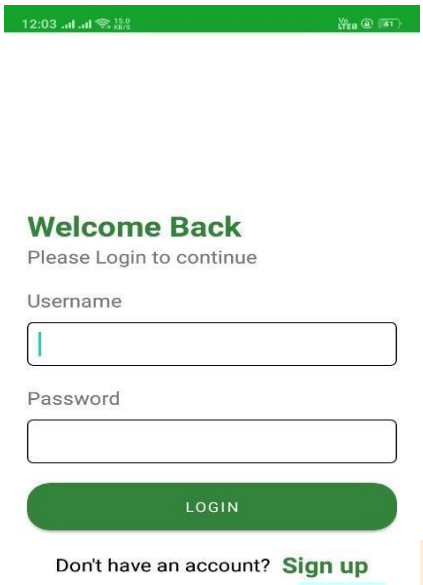

Fig1: Login Page

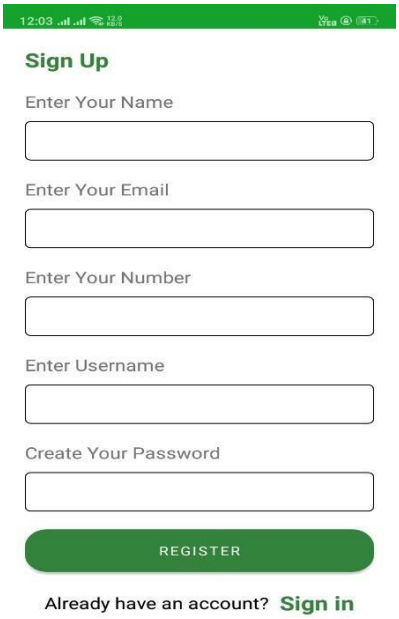

Fig2: Registration

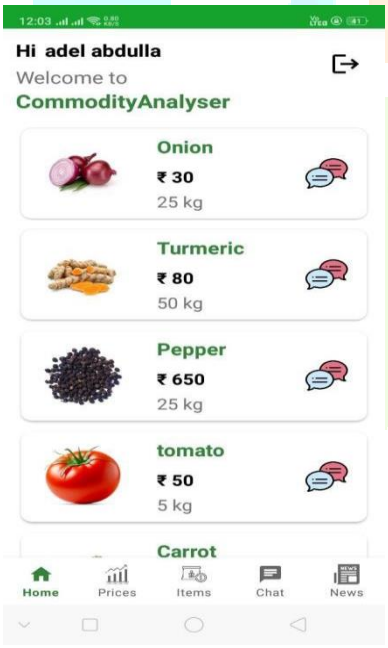

Fig 3: Home Page

Fig 4: News Page

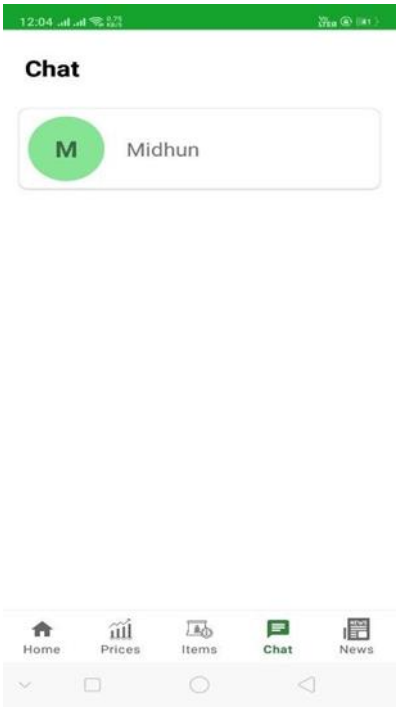

Fig 5: Chat Page

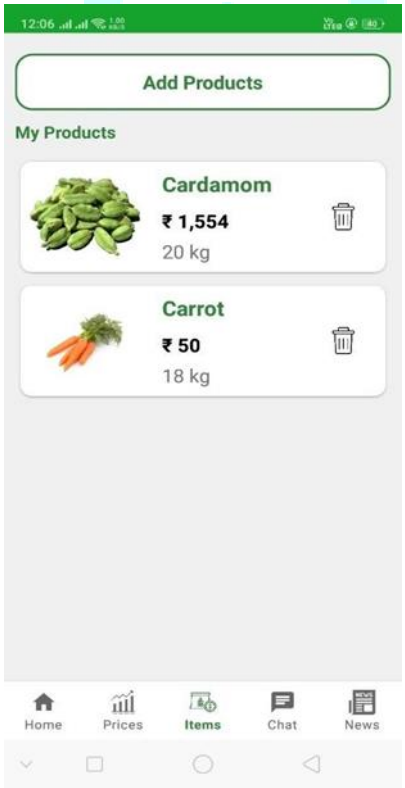

Fig 6: Product Page

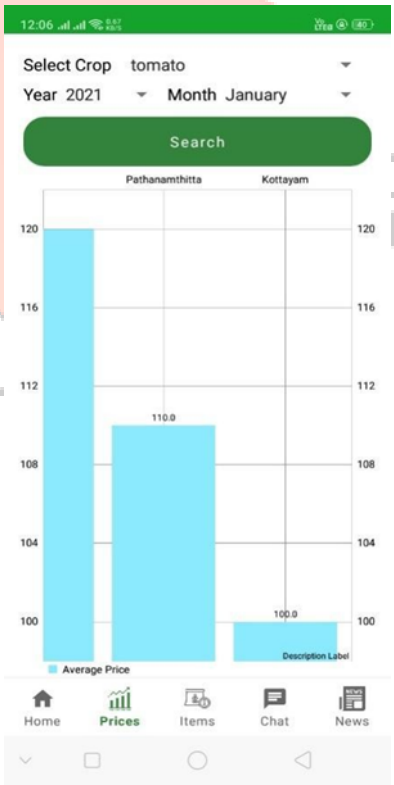

Fig 7: Price Details Page

7. CONCLUSION

Despite the problems that farmers and local traders encounter, the planned agricultural application serves as a beacon of hope. By seamlessly integrating elements such as real-time market prices, curated agricultural news, expert advice, and interactive forums, the app emerges as a full solution for providing users with the knowledge and resources they need to navigate the complexity of the agricultural industry. The application solves the key issue of price opacity by providing current market pricing, allowing farmers and dealers to make educated decisions about when and where to sell their goods. The addition of price notifications increases this feature by allowing users to profit on favorable market conditions while mitigating the risks associated with price swings. Furthermore, the app provides access to vital insights and knowledge via curated agricultural news, expert guidance, and interactive forums. This not only keeps users up to date on the newest innovations in farming practices, market trends, and legislative changes, but also develops a sense of community and collaboration within the agricultural ecosystem, Thus this mobile app is used to encouraging marginalized farming groups to engage more actively in the agricultural value chain and leveling the playing field depends critically on a more equal distribution of access to markets and information.

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