

Value Vision: Price Prediction

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Abstract—Agriculture is a key sector in India, where farmers face challenges due to fluctuating crop prices and yields influenced by climatic factors such as temperature, humidity, pH, and rainfall. This project aims to assist farmers in making data-driven decisions about which crops to cultivate for optimal profitability. By leveraging historical data on fruits, vegetables, and pulses, the system uses advanced machine learning techniques, specifically Long Short-Term Memory (LSTM) networks, to predict future crop prices and yields. These models consider various environmental and market variables to provide accurate profit forecasts. Additionally, the system performs a time series analysis to compare price and profit trends for the upcoming year with previous years. This approach empowers farmers by offering insights into crop selection and financial planning, thereby promoting sustainable agricultural practices.

Index Terms—agriculture, crop prices, LSTM, time series

I. INTRODUCTION

In India, agriculture plays a critical role in the economy, yet farmers often struggle with unpredictable crop prices and yields due to various environmental factors like temperature, humidity, pH, and rainfall. To address these challenges, this project aims to empower farmers by helping them make informed decisions on crop selection based on profitability. By utilizing historical data for fruits, vegetables, and pulses, this system applies advanced machine learning models, including Long Short-Term Memory (LSTM) networks, to forecast future crop prices and yields. These models integrate environmental and market data to deliver accurate predictions, enabling farmers to plan financially and optimize their crop choices. Additionally, time series analysis compares trends for the upcoming year against previous years, offering insights into market behavior and aiding sustainable agricultural practices.

II. OBJECTIVE

Our objective is to create a user-friendly platform that provides farmers with accurate and timely crop price predictions, empowering them to optimize planting

and harvesting schedules for better outcomes. By accessing reliable price forecasts, farmers can negotiate better prices for their crops, securing greater profits and enhancing financial stability. Additionally, our platform promotes sustainable agricultural practices by equipping farmers with valuable insights for informed resource management, ultimately fostering more efficient and environmentally conscious farming.

III. PROBLEM STATEMENT

Farmers face significant financial instability and uncertainty due to unpredictable market fluctuations, with drastic price changes often impacting their income. Existing forecasting methods are frequently inaccurate or inaccessible, leaving farmers without reliable insights into real-time market trends or historical data. Traditional approaches tend to be unreliable, as they fail to account for the complex interplay of market forces. This lack of dependable information makes it challenging for farmers to plan effectively, leaving them vulnerable to economic shifts and limiting their ability to make informed, profitable decisions. This website has the moto to serve farmers deal with this problem in a easy and transparent way.

IV. EXISTING SYSTEM

Currently, there are several platforms and government initiatives that provide farmers with access to market prices, but they do not offer price prediction capabilities. These systems primarily focus on delivering real-time crop prices from local and national markets through websites, mobile apps, or government portals. For example, platforms like AgMarknet and Kisan Suvidha in India provide current market prices based on data collected from various agricultural markets. They allow farmers to view price trends and access information on the availability of crops in nearby markets, helping them make decisions on what to plant on their field.

V. PROPOSED SYSTEM

The proposed system for Value Vision involves creating an interactive website where farmers can select different crop products to view current and predicted prices. The platform will integrate real-time data from market reports, weather conditions, and crop production statistics to provide accurate price forecasts. Using machine learning models like LSTM and XGBoost, the system will analyze historical trends and other factors influencing crop prices. The user-friendly interface will allow farmers to easily navigate and make informed decisions about planting, harvesting, and selling crops. Ultimately, this system aims to enhance financial stability, optimize farming practices, and promote sustainable agriculture.

VI. CONCLUSION

Our project is designed to empower farmers by providing an accessible, reliable platform for crop price predictions, enabling them to optimize planting and harvesting schedules for improved productivity. Through accurate and timely forecasts, farmers can secure better prices, thereby increasing their income and financial stability. By equipping farmers with data-driven insights, the platform also promotes sustainable agricultural practices and more efficient resource management. Overall, Value Vision aims to enhance farmers' decision-making processes, supporting a more resilient and environmentally conscious agricultural sector.

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