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Krushi Hub: A Web-Based Platform for Labour Profile Management, Equipment Booking and Mandi Price

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Abstract: ***This paper presents Krushi Hub, a role-based web application developed to support farmers by providing access to labour profiles, equipment booking services, and mandi price information through a single digital platform. The system allows labourers to create profiles containing their skills and contact details, enabling farmers to search and directly communicate with suitable workers. Equipment owners can list agricultural machinery for rental purposes, while administrators manage mandi price data. The application is implemented using the MERN stack and follows a client–server architecture. The proposed system demonstrates the practical use of web technologies to organize agricultural resources in a simple and efficient manner.***
Keywords: Krushi Hub, Agriculture Web Application, Labour Profile System, Equipment Booking, Mandi Prices

I. INTRODUCTION

Agriculture is one of the primary sources of livelihood in India; however, farmers face several challenges in their daily operations, including the availability of skilled labour, access to agricultural equipment, and accurate mandi price information. These activities are often managed through manual communication methods such as personal contacts and intermediaries, which can lead to inefficiency, delays, and lack of transparency. As a result, farmers may face difficulties in planning agricultural activities effectively. With the increasing availability of internet connectivity and digital technologies in rural areas, web-based systems can be effectively utilized to simplify and organize agricultural processes. Digital platforms provide an opportunity to connect farmers, labourers, and equipment owners through a centralized system. Krushi Hub is developed as a role-based web application that integrates labour profile management, equipment booking, and mandi price information into a single platform. The system is designed using modern web technologies and follows a client–server architecture, enabling secure access and efficient data management. The proposed application aims to improve accessibility to essential agricultural resources while maintaining simplicity and usability suitable for rural users.

II. SYSTEM OVERVIEW

Krushi Hub is a role-based web application developed using a client–server architecture to ensure organized data processing and secure access. The system is designed to support four distinct user roles: Farmer, Labourer, Equipment Owner, and Admin. Each user accesses the application through a secure login mechanism, after which they are redirected to a role-specific dashboard that provides relevant functionalities. Labourers create and manage their profiles by entering details such as skills, location, and contact information. Farmers can view and search labour profiles, book agricultural equipment, and check updated mandi prices through the platform. Equipment owners are responsible for managing farm equipment listings and handling booking requests, while the admin user manages mandi price data and oversees system content. This role-based structure ensures proper access control, smooth interaction between users, and efficient management of agricultural information within the system

III.MODULE DESCRIPTION

A. Labour Profile Module

The labour profile module allows labourers to sign up and create detailed profiles, including personal details such as their name, contact details, location, skills, and wages expected. Labourers can be given the ability to update or change any information within their profile at any time. A farmer can see a list of labourers registered and/or filter/shortlist labourers by skill and region or directly contact suitable labourers based on details provided in their profiles. This module works merely as a labor directory on digital grounds, and at no point does it involve the process of posting jobs, assigning or allocating jobs, and even job approval. Thus, keeping the system simple and easy to use.

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B. Equipment Booking Module

The equipment booking module provides a facility for equipment owners to create an account and list agricultural machinery, including the type of equipment, charges per day, location, and availability of the equipment. Equipment owners have the facility to add, modify, or delete information about their equipment. Farmers can search and view the availability of listed machinery based on location and type of equipment and place a request for its booking, as necessary. Equipment owners may review such requests and approve or reject them; based on this choice, the system will update the status of the booking.

C. Mandi Price Module

The mandi price module is controlled by the admin user and is used for maintaining crop prices. The admin user enters details regarding crop names, minimum prices, maximum prices, and modal prices along with mandi details and date. These are stored in the database and reflected in a reader-friendly format for farmers.Farmers are able to search mandi prices with respect to their type and are thus updated with current market prices.

IV. IMPLEMENTATION DETAILS

The application Krushi Hub has been developed using MERN stack technology, with MongoDB, Express.js, React.js, and Node.js being its components. React.js is used to design a user-friendly and interactive interface for users with different roles within the application. The backend of the application is handled using Node.js and Express.js, which helps in maintaining server-side logic, handling APIs, and performing role-based access control. MongoDB will act as a NoSQL database for the capture and management of data at user, farm equipment, and mandi price level. Information within the database is stored in the form of documents, facilitating flexible management and hence efficient retrieval of information.

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V. CONCLUSIONS

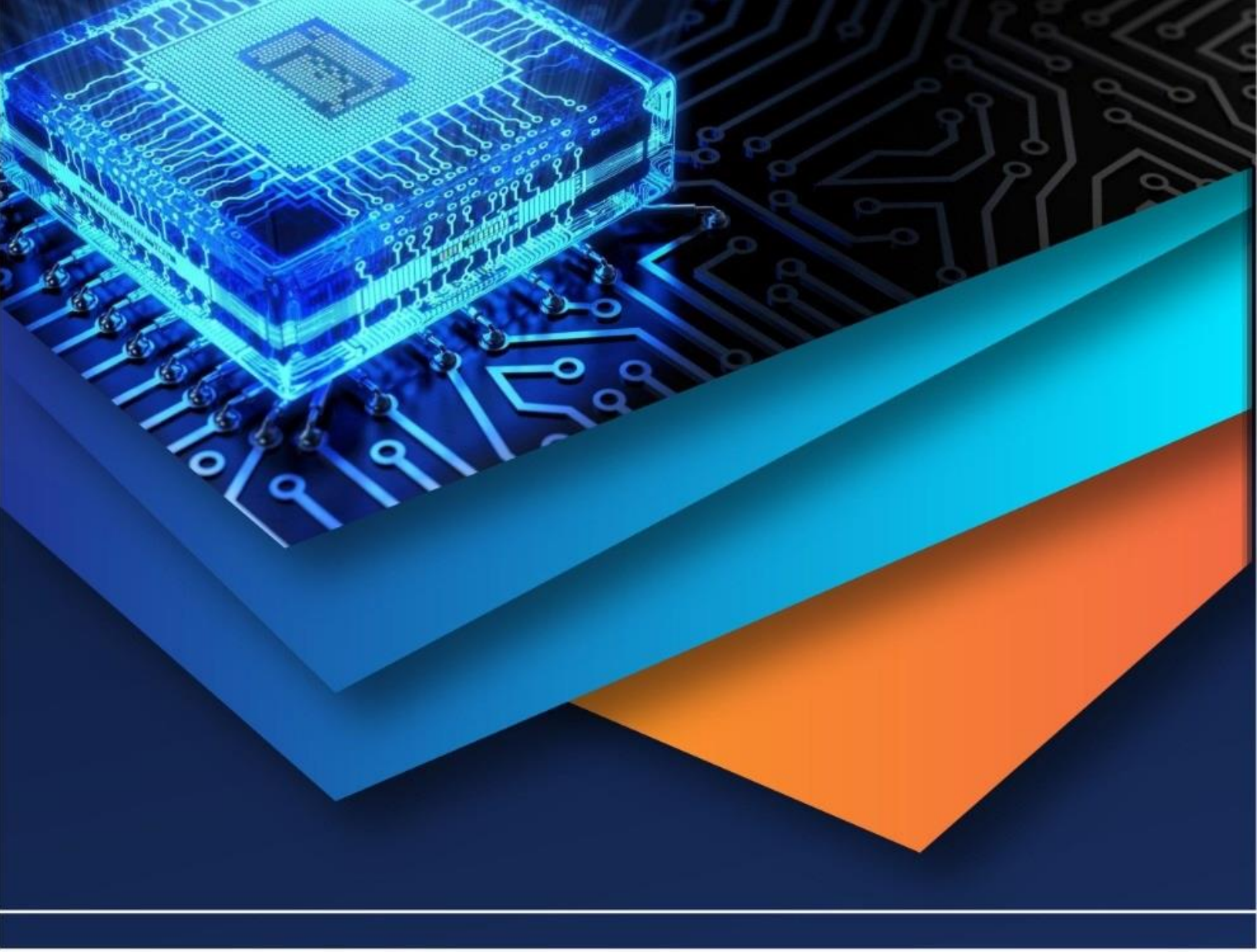
Krushi Hub offers a role-based web solution that combines information about mandi prices, equipment booking, and labor profile management into a single digital platform. By enabling farmers to view labor profiles, reserve farm equipment, and check updated mandi prices via a centralized interface, the system streamlines access to vital agricultural resources. The application, which is implemented using a client-server architecture and the MERN stack, shows how contemporary web technologies can be effectively used to meet real-world agricultural needs. The project is appropriate for both academic and practical implementation and provides a dependable and scalable model for digital agricultural support.

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