A project report on

Farmer Management System

by

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ABSTRACT

The Farmer Management System (FMS) is a comprehensive digital platform designed to revolutionize agricultural management practices and empower farmers with advanced tools for optimizing productivity, sustainability, and profitability. Key features of the FMS include crop planning and monitoring, livestock management, resource allocation, financial tracking, predictive analytics, and collaborative knowledge sharing. By harnessing real-time data, predictive insights, and peer-to-peer learning networks, the FMS enables farmers to enhance productivity, reduce costs, mitigate risks, and access premium markets. Moreover, the system promotes sustainable farming practices, traceability, and compliance with quality standards, contributing to the long-term resilience and competitiveness of agricultural communities. The FMS represents a significant advancement in agricultural management technology, empowering farmers of all scales to thrive in an increasingly complex and dynamic agricultural landscape.

The main aim of developing "Farmer Management System Project" application is to help farmers by providing all kinds agriculture related information in the site. "Farmer Management System Project" is web application which helps farmers to share best-practice farming processes. It helps farmers to improve their productivity and profitability. It enables farmers to sell their products online and farmers can purchase tools and seeds directly from seller. Farmers can view their profile and they can register, edit and delete data.

The farmers can sell their productions online and the buyer can purchase various agricultural products online. Buyer can send purchase request to check the quality of the Agro product through mails.

INTRODUCTION

In rural agricultural communities, effective management of farming activities is essential for maximizing productivity and sustainability. However, many farmers face challenges in organizing and optimizing various aspects of their operations, including crop cultivation, livestock management, resource allocation, and financial tracking. Without a comprehensive system in place, farmers may struggle to make informed decisions, leading to inefficiencies, reduced yields, and financial losses. Therefore, there is a pressing need for a Farmer Management System that integrates digital tools to streamline farm operations, improve decision-making, and enhance overall productivity and profitability. This system should offer functionalities such as crop planning and monitoring, inventory management, weather forecasting, financial tracking, and data analysis, tailored to the specific needs and constraints of small to medium-sized farms. By providing farmers with a user-friendly platform to manage their operations more effectively, the Farmer Management System aims to empower agricultural communities, promote sustainable practices, and contribute to food security and economic development.

The Farmer Management System project aims to revolutionize the way farming operations are managed and optimized in rural agricultural communities. By leveraging digital technologies, this system seeks to address the challenges faced by farmers in organizing and maximizing their productivity while ensuring sustainability and profitability. Through a user-friendly platform, farmers will gain access to a suite of tools and functionalities tailored to their specific needs, including crop planning, livestock management, inventory tracking, financial monitoring, and data analysis. By empowering farmers with the means to make informed decisions and streamline their operations, the Farmer Management System promises to drive efficiency, improve yields, and contribute to the long-term viability of agricultural livelihoods.

2. OBJECTIVES AND NOVELTY

- The main objective of the project is to design and develop a user friendly-system

- Easy to use and an efficient computerized system.

- To develop an accurate and flexible system, it will eliminate data redundancy.

- To study the functioning of Farm management System.

- To make a software fast in processing, with good user interface.

- To make software with good user interface so that user can change it and it should be used for a long time without error and maintenance.

- To provide synchronized and centralized farmer and seller database.

- Computerization can be helpful as a means of saving time and money.

- To provide better Graphical User Interface (GUI).

- Less chances of information leakage.

- Provides Security to the data by using login and password method.

- To provide immediate storage and retrieval of data and information.

- Improving arrangements for farmers co-ordination.

- Reducing loss.
- Mobile Accessibility and Offline Functionality: Unlike traditional farm management systems, which are often desktop-based and require constant internet connectivity, the Farmer Management System will prioritize mobile accessibility and offline functionality. This allows farmers to access and update their farm data even in remote areas with limited connectivity, ensuring continuous operation and usability.

3. LITERATURE SURVEY WITH CITATIONS OF JOURNALS

1. **Management Information System in context of Food grains: An Empirical Study at Eastern Maharashtra**

    D. K. Singh, S. Kediya, R. Mahajan and P. K. Asthana, "Management Information System in context of Food grains: An Empirical Study at Eastern Maharshtra," *2021 International Conference on Computational Intelligence and Computing Applications (ICCICA)*, Nagpur, India, 2021, pp. 1-5, doi: 10.1109/ICCICA52458.2021.9697144.
    keywords: {Productivity;Procurement;Management information systems;Media;Agriculture;Software;Complexity theory;Farmers;Management Information system;Technology;Sales;Crop},

2. **The Design of an Intelligent Livestock Production Monitoring and Management System**

    Y. Wang, X. Yong, Z. Chen, H. Zheng, J. Zhuang and J. Liu, "The Design of an Intelligent Livestock Production Monitoring and Management System," *2018 IEEE 7th Data Driven Control and Learning Systems Conference (DDCLS)*, Enshi, China, 2018, pp. 944-948, doi: 10.1109/DDCLS.2018.8516021.
    keywords: {Animals;Feeds;Monitoring;Agriculture;Temperature sensors;Temperature measurement;Livestock production;Monitoring and management system;SVM},

3. **Research on Constructing Green Food Traceability Information Management System from the Perspective of Farmers' Behavior**

    L. Hou, Y. Li and Y. Wang, "Research on Constructing Green Food Traceability Information Management System from the Perspective of Farmers' Behavior," *2021 International Conference on E-Commerce and E-Management (ICECEM)*, Dalian, China, 2021, pp. 584-587, doi: 10.1109/ICECEM54757.2021.00117.
    keywords: {Information sharing;Production;Quality control;Agricultural products;Electronic commerce;Standards;Investment;agriculture;green food;traceability;Information Management System},

4. **Performance measurement of the relationship between farmers-cooperatives-industrial processing milk in a dairy supply chain: A balanced supply chain management scorecard approach**

Susanty, A. Bakhtiar, R. Purwaningsih and D. F. Dewanti, "Performance measurement of the relationship between farmers-cooperatives-industrial processing milk in a dairy supply chain: A balanced supply chain management scorecard approach," *2017 IEEE International Conference on Industrial Engineering and Engineering Management (IEEM)*, Singapore, 2017, pp. 1387-1391, doi: 10.1109/IEEM.2017.8290120.
keywords: {Dairy products;Supply chains;Interviews;Standards;Current measurement;Supply chain management;balanced supply chain management scorecard;dairy supply chain;cooperative;dairy farmers;industrial milk processing},

5. **Novel Cattle Farm Management System Based on IoT and RFID**
F. Hu, M. Zhou, Y. Qin, Q. Zhao, Y. Xin and G. Li, "Novel Cattle Farm Management System Based on IoT and RFID," *2022 3rd International Conference on Computer Science and Management Technology (ICCSMT)*, Shanghai, China, 2022, pp. 60-63, doi: 10.1109/ICCSMT58129.2022.00020.
keywords: {Java;Keyboards;Production;Cows;Software;Real-time systems;Task analysis;Cattle farms;Management software;Internet of thing;RFID},

6. **Requirements Analysis and Design for Thai Beef-Cattle Farm Management System**

K. Noinan, S. Wicha, P. Sureepong and R. Chaisricharoen, "Requirements Analysis and Design for Thai Beef-Cattle Farm Management System," *2021 Joint International Conference on Digital Arts, Media and Technology with ECTI Northern Section Conference on Electrical, Electronics, Computer and Telecommunication Engineering*, Cha-am, Thailand, 2021, pp. 356-359, doi: 10.1109/ECTIDAMTNCON51128.2021.9425779.
keywords: {Knowledge engineering;Computational modeling;Government;Production;Cows;Media;Stakeholders;Smart Farming;Farm Management;Beef Cattle farm management;Beef cattle Knowledge sharing model;PBL model for smart farmer},

4. Proposed Methodology with algorithm, flow diagram or flow chart or architectural diagram

Existing work:

SourceTrace is collaborating with Small Farmers Agri-business consortium (SFACH) and Karnataka Horticulture Department, deploying its digital solutions to support the horticulture farmers of India. Karnataka Agriculture Department is committed to providing a responsive and effective mechanism for the welfare of farmers and farm-based communities and recognizes the need to harness the growing power of Information Technologies for the betterment of life of the farmers and management of Farmer Producer Organizations (FPOs) in Haryana. To deploy its digital solution, Source Trace is in the process of creating 100,000 farmer profiles. The system was developed using technologies such as, HTML, CSS ,JS and MySQL. PYTHON- FLASK, HTML and CSS are used to build the user interface and database was built using MySQL. The system is free of errors and very efficient and less time consuming due to the care taken to develop it. All the phases of software development cycle are employed and it is worthwhile to state that the system is very robust. Provision is made for future development in the system.

Proposed work:

The farmers can sell their productions online and the buyer can purchase various agricultural products online. Buyer can send purchase request to check the quality of the product. After collecting all the farm produce from the farmers, it should be sold to the customers. This project covers these entries and the data collections.There are 2 types of users: Customer & Farmers.The login id and password must be required to login the system. The article and agro products section helps farmers to share their products and increase profitability.

Database Design:

SOFTWARE REQUIREMENTS: Frontend- HTML, CSS, Java Script, Bootstrap Backend- Python flask (Python 3.7) , SQLAlchemy,

- Operating System: Windows 10

- Google Chrome/Internet Explorer

- XAMPP (Version-3.7)

- Python main editor (user interface): PyCharm Community
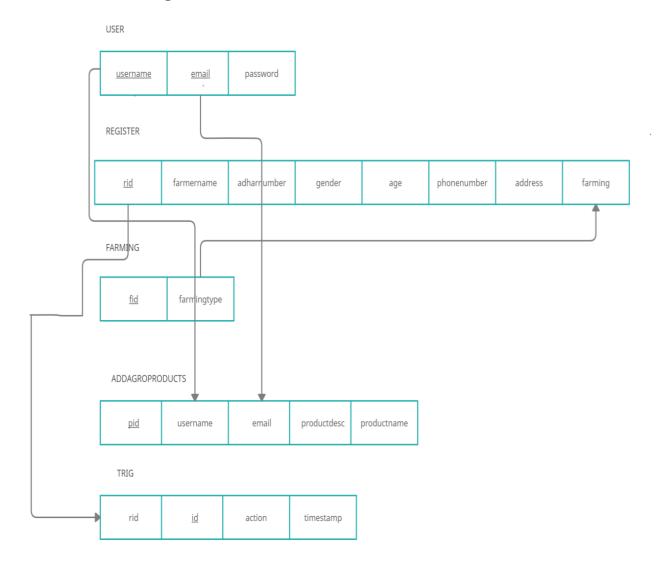
- workspace editor: Sublime text 3

HARDWARE REQUIREMENTS:

- Computer with a 1.1 GHz or faster processor

- Minimum 2GB of RAM or more

- 2.5 GB of available hard-disk space

- 5400 RPM hard drive

- 1366×768 or higher-resolution display
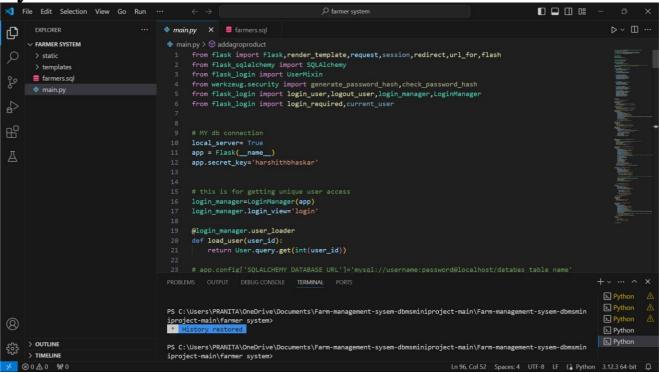
- DVD-ROM drive

Conceptual Design:

ER Diagram

Schema Diagram

USER

username	email	password

REGISTER

rid	farmername	adharnumber	gender	age	phonenumber	address	farming

FARMING

fid	farmingtype

ADDAGROPRODUCTS

pid	username	email	productdesc	productname

TRIG

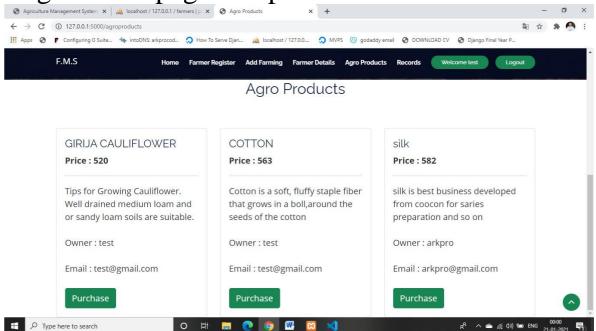| rid	id	action	timestamp

5. RESULTS AND ANALYSIS

Python Code

SQL Code

User Interface
- Sign-in page

Registration page and products

FARMER ID	ACTION
2	FARMER UPD
2	FAR
8	
8	
8	

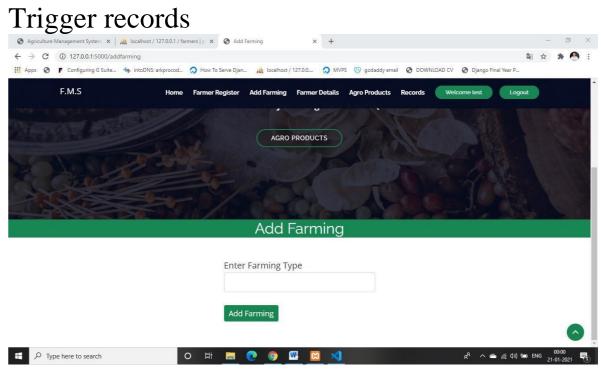- Trigger records
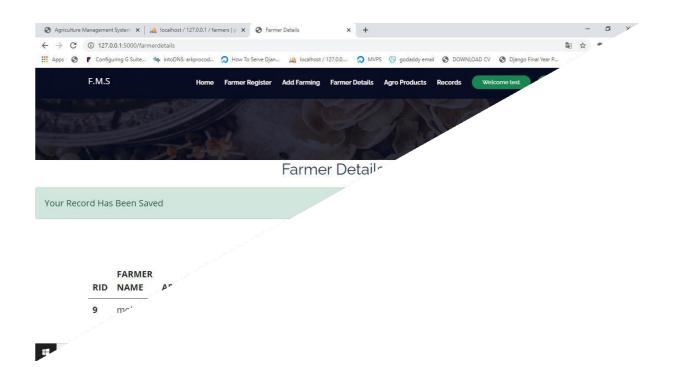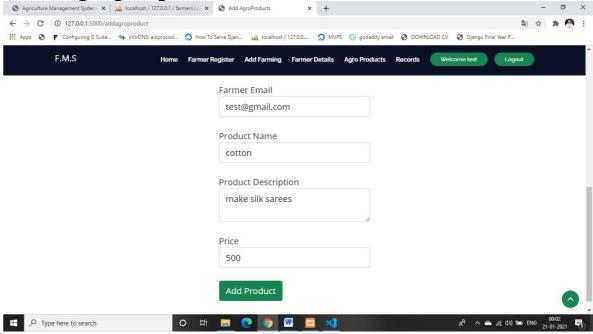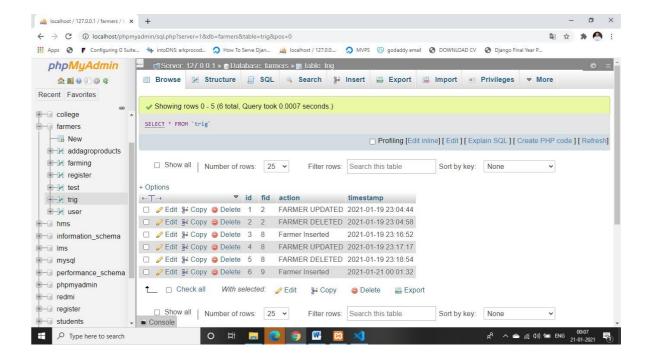
- # Adding agro products

Database

6. CONCLUSION

FARMER MANAGEMENT SYSTEM successfully implemented based on online selling which helps us in administrating the agroproducts user for managing the tasks performed in farmers. The project successfully used various functionalities of Xampp and python flask and also create the fully functional database management system for online portals.

Using MySQL as the database is highly beneficial as it is free to download, popular and can be easily customized. The data stored in the MySQL database can easily be retrieved and manipulated according to the requirements with basic knowledge of SQL.

With the theoretical inclination of our syllabus it becomes very essential to take the atmost advantage of any opportunity of gaining practical experience that comes along. The building blocks of this Major Project "Farm Management System" was one of these opportunities. It gave us the requisite practical knowledge to supplement the already taught theoretical concepts thus making us more competent as a computer engineer. The project from a personal point of view also helped us in understanding the following aspects of project development:

• The planning that goes into implementing a project.

• The importance of proper planning and an organized methodology.

• The key element of team spirit and co-ordination in a successful project.

7. REFERENCES

https://www.youtube.com

• https://www.google.com

• http://www.getbootstrap.co