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Livestock Management Using Digital Technology

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ABSTRACT

There is a lack of awareness among people on how to take care of their animals and how to prevent animals from getting affected. This proposed system will provide precautions and prevention methods to take care of their animals more safely and healthily. Our main objective is to give healthcare tips to people so they can easily take care of their animals and also by providing veterinary support to the users virtually and by providing better feeding management for domestic animals to increase their productivity and for pet animals to make them grow healthier. Apart from this our proposed system will also support buying and selling animals. Better Infrastructure for livestock shed spacing is also provided. The main benefit of our proposed system will be more useful for people who have less knowledge of animals and it will be more profitable for domestic animal caretakers the buying and selling option can be done virtually without any brokerage.

Keywords: *Application, Animal health, Trading, Government schemes, Infrastructure*

INTRODUCTION

The Department of Animal Husbandry & Dairying Government of India report (2021-2022) says that Animal Husbandry has constant growth at a rate of 4.90% over the year by year.

It just shows that animals are contributing to our economy in a great way. The role of our proposed system is to help in solving the problems faced by livestock farmers in day-to-day life so that they can also help the community's economy. The applications of the proposed system will use descriptive methods in gathering data and describing problems that have been faced by the community. Therefore, this proposed system will be able to reduce the problems faced in the field of animal husbandry.

This application will have various modules which will help livestock farmers in different aspects of the field of animal husbandry and the people with less knowledge in the field will gain more from the proposed solution as the methods will be in the detailed description which will be easy to understand. The purpose of this proposed system is to produce the necessary information needed by livestock farmers to handle the problems in the field of animal husbandry using android-based applications that can help them in various ways. Regular updates about the livestock were given to the people who do not know about government schemes and other sectors were given to the people.

LITERATURE SURVEY

While analyzing the problem statement, the existing system has some features as well as some drawbacks in it. The useful features from the existing were taken to help the users in a digital way of guiding. According to the existing system, climatic changes made a huge impact on livestock breeding and health issues for animals, and the traditional way of trading livestock leads to low growth for the users. Here we analyzed some existing systems. So the new technology for the development of livestock management will be provided for easy guidance and maintenance of animals that would overcome the drawbacks of the existing system.

Animal Husbandry Mobile apps in transformation livestock farming – This Journal tells about the mobile apps being a potential communication between the farmers and the application and it involves necessary information needed by the farmers to increase their income and productivity and marketing and government policies. The drawback of the journal is it doesn't provide the information about the medical needs and disease awareness for livestock's.

Livestock Contribution to food and nutrition and security – This journal tells about the scientific basis of raising goats to improve production and productivity of goats. It mainly focuses on breed and Conception and Kidding. The main drawback is that it focuses on particular animal only and it may be difficult to understand for newcomers in the field.

Animal Welfare Knowledge, altitudes and practices among livestock holders – This journal tells about the animal welfare and how the low income people are depending on livestock farming. It focuses on medical needs for livestock in product wise as well as disease wise. The drawback is that it doesn't provide information about the income and productivity of livestock.

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Review on impact of climate change on livestock health and productivity – This journal tells about the climate change and the weather events affecting animals. It includes feed shortage, livestock genetic resources, poor reproductive performance and reduces milk production. The drawback is that it doesn't tell about the overcoming of the diseases and the treatment and prevention and precaution measures.

Livestock production in agro forestry perspective and strategies – This journal tells about the nutrition and feeding system for cattle's. It focuses on variety of feeding system depending on their environment and conditions. The drawback is that it doesn't provide full information of crops which is required for environment and productivity and it is not be suitable for tribal livestock holders because of their unchangeable environment

SYSTEM OVERVIEW

The Proposed System will provide solutions for every necessary need in animal husbandry. The Application starts with getting information from the users. At first, it will check for the login/signup credentials. Then, the page will move to the Language page where the users will enter the type of language they are comfortable with. After, entering the type of language the next page will consist of features of the proposed system where it will be divided into four separate divisions. The divisions are HealthCare, Infrastructure, Trading, Government Schemes. In, HealthCare division the user can get the information about Veterinary Support, which will have emergency contact information of nearby care center and then in Seasonal diseases,

there will be precaution measures for preventing the diseases and then in HealthCare Tips, the basic information about the livestock and then in Feeding Management, scheduling of food activities can be done. In, Infrastructure division the guidance for livestock's living area will be provided. In, Trading division the contact information about buyers and sellers will be provided. In, Government Schemes division the information about insurance, loan and subsidy will be provided. The main purpose of the proposed system is to make the livestock farmers work easier.

METHODOLOGY

The major problem faced by farm owners today is the limited knowledge in the field of livestock management. The field of animal husbandry is not aware among most people in the country. The information should be in an easy understanding way that the farmers can adapt to it easily. The solution to this challenge requires the implementation of various technologies in a single platform where the pieces of information about animals will be provided requires the implementation of various technologies in a single platform where the pieces of information about animals will be provided.

Modules

In this, we have four basic modules namely:

1. Healthcare Guidance
2. Infrastructure
3. Animal Trading
4. GovernmentSchemes Information

These modules have submodules in them for better information for user understanding.

Healthcare
### Veterinary Support

The basic and emergency needs of an animal will be provided. This module will be divided into four submodules: Veterinary Support, HealthCare tips, Seasonal diseases, and Feeding Management. This module will act upon the type of animal input provided by the user. The veterinary support submodule will be used for

medical and emergency purposes of an animal. An Integrated Map will be provided to search for nearby veterinary care. If any emergency means they can find the nearby health center for first-aid for animals. The healthcare tips will be used for providing necessary information about the animals in terms of nutrition and protection from blood- sucking insects on livestock. Information about managing the particular animal will be given in this module.

This Submodule will be used for disease identification purpose Weather API will be used to identify the climate of the user's location. Based on climatic conditions precautionary measures will be provided to the users.
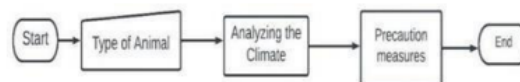

Scheduling & Time API will be used for notifying the user about feeding activities. Feeding Management is based on the morning-to-evening feeding system to grow animals more healthily with the help of our proposed system and fodder for cattle was provided in quantity


Infrastructure

In this Module, information about the area required for animal shelters will be provided. It will calculate the area required upon the user's input animal. A mathematical algorithm will be used to calculate the area of the animal shelter. Video Guidance will be given too.
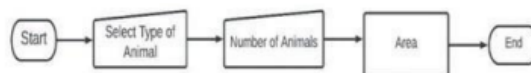
Animal Trading

In this module, the trading of animals between the users will be provided without any brokerage. The Buyer and seller information will be provided according to the registration detail in the database. They can register themselves as a buyer or seller based on their needs.
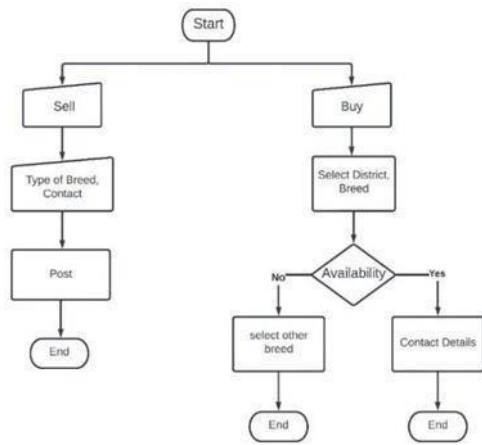
Government Schemes

In this Module, the Schemes provided to the users are given by the government for the animal. The schemes will be provided according to the user based on the animal category and eligibility criteria were also given for the user, the details of where to apply for the schemes are also given in this module. So the user need not search the further details for applying for schemes.

System Architecture
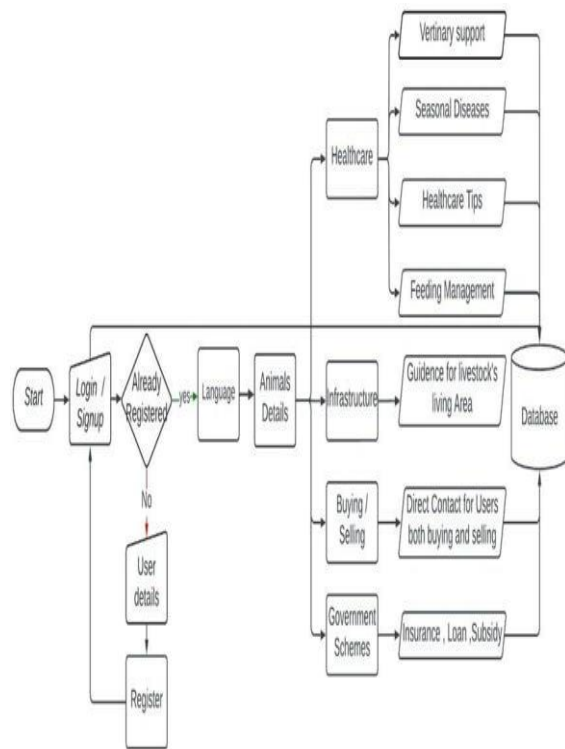
Software Tools

Android Studio - Android Studio is a software environment, where we can build android applications. Structured modules of ordered codes allow you to divide your project into files of functionality that you can independently build, test, and debug using the software. It is the ordered way to develop an Android Application. In our proposed solution, we use Android studio as a software development tool for implementing projects. It is easy to create a User Interface and connecting with the real-time database is done with plugins and an Application

Programming Interface (API) will be integrated into an Android application.

Figma - Figma is a design tool that lets you create designs for mobile and web interfaces, or any other kind of design you can think of. Figma is a collaboration tool for teams and individuals to create and share high-quality work. The main User Interface design and workflow of our proposed system are done by the Figma platform. Because it is very light, simple, and elegant for teamwork, and also very simple to learn in a short period.

Flutter - Flutter is an open-source User Interface software development kit created by Google. It is used to develop cross- platform applications for Android. All User Interface development is created in Flutter and is converted into code using some plugins in Android Studio. Easy building for UI and implementation in Flutter is done with help of Dart programming language.

Java - There are many programming languages for building an application in Android studio. But in our proposed system we go with java for the backend development. Because of its multi-platform support and security for user data. Java Database connectivity helps to connect with the database over the internet in an easy manner for storing, accessing, and working with data.

Firebase - Firebase is a set of hosting services for any type of application for Backend connectivity with a Database. It offers real- time hosting of databases, content, notifications, or services, such as a real-time communication server. Updating of details of each data will be accessed by the user in real- time without any further

update of the android application. The connectivity with the application in Android Studio is done by using the Firebase Firestore plugin. All user data and information about livestock are stored in Firebase for accessing the real-time database. So, we can regularly update the data very easily. New schemes introduced by both the state and central government were updated quickly. So users can use subsidies based on their eligibility criteria.

RESULTS

This will be the first page of the application, where the user has to enter the login credentials first. After, entering the information, it will be checked with the database whether it matches or not. Then it will proceed to the home page of the proposed system. So that the invalid users will be blocked from accessing the contents of the livestock management. The output will be in some format given below.

CONCLUSION

The application will be very useful for livestock farmers as it is developed mainly for the field of animal husbandry. The benefits gained from the proposed solution will help the economy of the animal husbandry field which will result in the improvement of the community. As the information will be in a detailed descriptive method the fewer knowledgeable people entering the field can get adapt to the field easily which will increase the production of the field. The increase in production will benefit the government in various ways which will make the government give some leverage over the livestock farmers. Apart from the benefits, knowledge about livestock animals can be gained on a larger level. In, the end the proposed system will help livestock farmers to make their work easier. Seasonal diseases were avoided before the disease affect the animal. The market range will be spread over the national level for marketing. The main purpose of the proposed system is to provide better support for the user and to raise the economy of individuals and nations for good development in countries over the world level export of animal products.

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