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RENT-A-FARM TOOL

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Keywords	*Abstract*
Python and Django *Liable amounts* *Modern Equipment* *Rent the equipments*	*This project aims to create an application using Python and Django that allows users to create and chat in real-time. Agriculture forms the backbone of Indian economy and there is always a need of supporting and improving it. Modern agricultural equipment's make farmers work more efficient and easy. As a part of which there are some organizations that are set up to help those farmers who are in need of such equipment's ,where the organization owns the equipment's and rent those on request of farmers at liable amounts. At present, farmers need to travel to a place to borrow all the essential needs, which is a tiresome and not a cost effective work. So a smart digital farming is listed as the highest ranking technology opportunity in the latest Global Opportunity report in terms of its expected positive impact on society. This paper is on digitizing the process of renting the agricultural equipments by the farmers .We aim at developing an application that farmers can use to get their equipments on rent and also check the availability and renting .We also allow them to book the equipments in advance .It also helps us to get the track of equipments that are on rent .We also aim at developing analytic for the state heads to make better availability of equipments and to keep track of the equipments as well, which could help in providing better support for farmers.*

I. Introduction :

Farmer needs to undertake a number of activities on a routine basis. The activities take a troll on the time and money of the farmer. Fortunately as mankind has evolved, more and more systematic methods of farming have evolved. These depend on a number of tools, *implements and equipment*

The tools that the farmers use should be of advanced level so that the work can be done in the short period of time and efficiently. The equipment should be available at cheaper rates so that the low level farmers can also afford it and they can use these equipments. The farmers should be aware of the original prices for renting of the equipment and they should know the working of the equipment. To provide all of these features we have come up with the app RENT-A-FARM TOOL. In this we provide the farmers the advanced equipment for the farming and also a guide to guide them how to use the equipment. We also have the offline stores so that the farmers by themselves can go and check the equipment at the store and bring it to their workplace. For the people who cannot come to the store we have a delivery partner to the equipment to them at their doorstep. This makes their work easy and also they need to put less efforts to do their work.

Fig1: Homepage

II. Existing system:

Telematics Systems:

Telematics systems use sensors and other technologies to gather data on farming equipment such as fuel usage, engine performance, and maintenance needs. This data can be used to monitor equipment performance, improve efficiency, and reduce downtime.

Crop Management Systems:

Crop management systems can be used to monitor crop growth and health, including monitoring soil moisture levels, tracking weather conditions, and identifying potential pest and disease outbreaks. These systems can help farmers optimize crop yields and reduce the need for chemicals

Farmers use old techniques and equipments for farming.

Farmers working hard in the fields with out the knowledge of the advanced equipment and their uses.

Farmers renting the new and advanced farming equipment for high prices without the knowledge of the original price.

Farmers renting the equipments from far distances.

Fig2: Old equipment

Fig3: Old equipment

III.**Proposed system**:

Online Platform: A user-friendly online platform would be developed that farmers could use to browse available equipment and make rental reservations. The platform would also allow farmers to track their rental history and make payments.

Insurance: An insurance policy would be put in place to protect both the rented equipment and the farmer from any potential damages or accidents.

Customer Service: A customer service team would be available to assist farmers with any questions or concerns they may have regarding the rental process or equipment usage.

Equipment Management System: An equipment management system would be implemented to keep track of available equipment and their condition. This system would ensure that all rented equipment is properly maintained and in good working condition .

The equipment that we provide is of advanced level so that we also provide a guide to guide the user if there is any need to the farmer.

In this we provide a platform to the farmers in which they can know about the equipment and the tenure rent prices of the equipment.

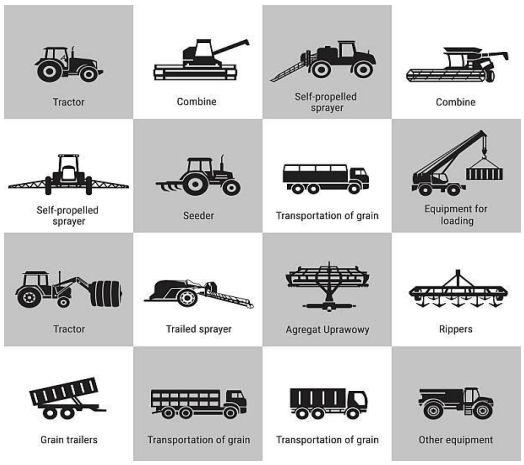

Fig4: New equipment

Fig5: New equipment

IV. **Modules**:

Delivery and Pickup Module: This module would manage the logistics of delivering and picking up equipment from the farmers' locations. It would coordinate the transportation and ensure that the rented equipment arrives and is picked up on time.

Equipment Management Module: This module would handle the equipment inventory, maintenance schedules, and equipment history. It would track the location and condition of each equipment piece and alert the maintenance team when any repairs are required.

Reservation Management Module: This module would allow farmers to view the available equipment, reserve it, and make payments. It would also handle the scheduling of delivery and pickup of the rented equipment.

Payment and Billing Module: This module would handle all the payment and billing processes related to equipment rental. It would generate invoices, track payments, and send payment reminders to farmers.

V.**Dataset descriptions**:

Equipment type: This refers to the type of farming equipment rented, such as tractors, harvesters, plows, or irrigation systems.

Rental period: This refers to the length of time the equipment is rented for, such as hours, days, weeks, or months.

Rental cost: This refers to the price paid by the farmer for renting the equipment, which may vary depending on the type of equipment, rental period, and other factors.

Farmer information: This refers to the name,

location, and other details of the farmer who rented the equipment.
Maintenance History: Information on the maintenance and repairs performed on the equipment, such as oil changes, part replacements, or repairs
Fuel Type: The type of fuel the equipment uses, such as diesel, gasoline, or electric.
Other factors: Other factors that may be included in the data set are weather conditions, crop yields, or any other factors that may impact the rental or use of farming equipment.

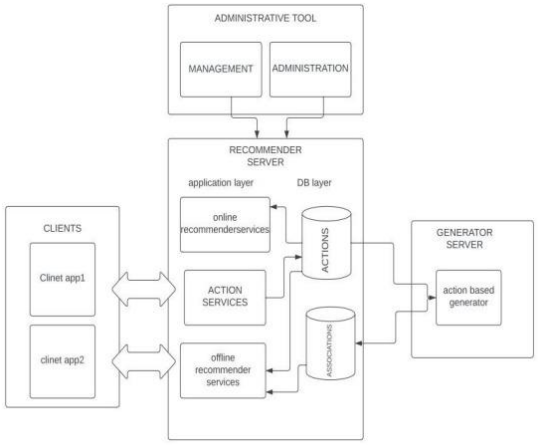

Fig5: Architecture

VI.**Modules and Algorithms**:

Collaborative filtering: This algorithm is used to recommend equipment to farmers based on their past rental history and the rental history of similar farmers. The algorithm identifies patterns in rental behavior and recommends equipment that is most likely to be rented by the farmer.
Clustering: Clustering is used to group similar equipment together based on various attributes such as type, horsepower, capacity, fuel efficiency, etc. This algorithm can be used to recommend equipment to farmers based on their past rental history and the equipment that is popular among similar farmers.
Decision trees: Decision trees can be used to predict the rental price of equipment based on various factors such as rental period, type of equipment, maintenance costs, etc. The algorithm can help the app provide the most accurate rental price for farmers.
Neural networks: Neural networks can be used to predict the demand for equipment based on various factors such as weather conditions, crop yields, and the time of the year. The algorithm can help the app provide farmers with the most relevant equipment for their needs.

VII.**Buliding a model**:

Market Analysis: Conduct a market analysis to understand the demand for farming equipment rentals in the target area. This will involve researching the number of farmers in the area, the types of crops grown, and the current availability of farming equipment rentals.
Equipment Procurement: Acquire the selected equipment through purchase or lease agreements with manufacturers and suppliers. It is important to ensure that the equipment is in good working condition and meets the required safety standards.
Rental Pricing: Develop a pricing model that is competitive with other rental services in the area. This should take into account the cost of equipment procurement, maintenance, and overhead expenses. Marketing Strategy: Develop a marketing strategy to promote the rental service to farmers in the target area. This should include advertising through print and online media, attending agricultural fairs and events, and developing partnerships with local farming associations and cooperatives.
Operations Management: Develop a system for managing the rental equipment, including scheduling, maintenance, and repairs. This should include hiring trained personnel to operate and maintain the equipment and implementing a system for tracking equipment usage and availability.
Customer Service: Develop a customer service system that provides support and assistance to farmers who rent equipment. This should include a system for addressing customer concerns and complaints, providing technical support, and ensuring that equipment is delivered and returned on time.

VIII. **Results**:

The final results of the application includes:

- *The farmers can login in to the application using their id and the password.*
- *If they are new to the application they can register through registration page which is available below the login page.*
- *After that they can choose the equipment which they are looking for among the available equipments which are displayed under the featured products section and order it .*
- *We also provide a personal guide if the equipment is new to the farmer, so that he/she can easily understand about the equipment.*
- *We have the customer care service which is always available to solve the problems.*
- *We accept all the types of payments.*
- *We also provide insurance for the equipment.*
- *We also have the tenure in which the customer wants the product.*

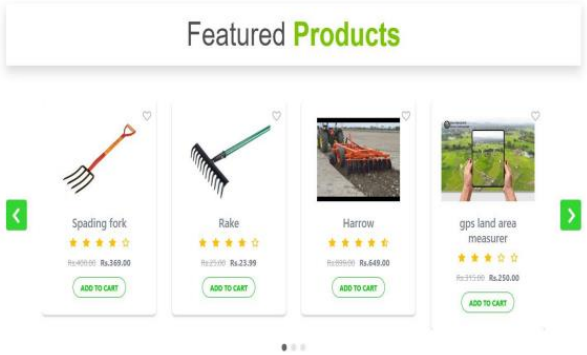

Fig6: Featured products

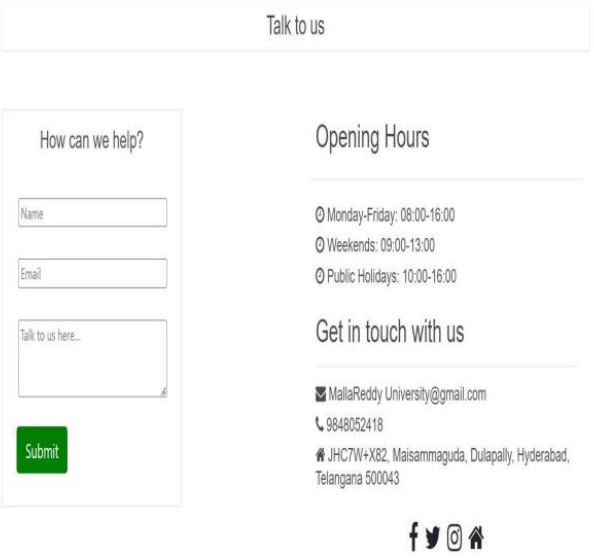

Fig7: Customer care

IX. **Future enhancement**:

Expand your equipment offerings: Depending on the size and scope of your current rental offerings, you may want to consider expanding into other types of equipment that could be useful for farmers. For example, you could add tractors, plows, cultivators, or other types of specialized equipment.

Offer maintenance and repair services: Another way to differentiate your rental business is by offering maintenance and repair services for the equipment you rent out. This could include regular maintenance checkups, repairs, or even training for farmers on how to properly use and care for the equipment.

Introduce precision agriculture technology: Precision agriculture technology is becoming increasingly popular among farmers, and there are many innovative tools that can help optimize crop yields and reduce waste. By offering precision agriculture technology rentals, you could differentiate your business and provide even more value to your customers.

Expand your service area: If your rental business is currently limited to a specific geographic region, you may want to consider expanding your service area to reach more farmers. This could involve partnering with other rental businesses in neighboring regions, or investing in additional

equipment and staffing to handle increased demand.

X. Conclusion:

In conclusion, a farming equipment rental project has the potential to be a big opportunity for entrepreneurs looking to serve the agriculture industry. The demand for farming equipment is likely to remain strong in the future, as farmers continue to seek innovative solutions to increase productivity and optimize crop yields. By providing high-quality equipment and value-added services, such as maintenance and repair, precision agriculture technology, and online platforms, rental businesses can differentiate themselves and provide added value to their customers. Furthermore, as new technologies emerge and the agriculture industry evolves, there will likely be many opportunities for innovative businesses to create new solutions that meet the needs of farmers and help drive the industry forward. With careful planning and execution, a farming equipment rental project can be a big success, providing entrepreneurs with a rewarding and profitable business venture.

XI. Acknowledgement :

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