iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** V **Month of publication:** May 2021

DOI: https://doi.org/10.22214/ijraset.2021.34198

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue V May 2021- Available at www.ijraset.com

Krishi Mart – A Multilingual Farmer's Portal for Better Sales Using Sentimental Analysis

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Abstract: ***Krishi Mart is an online portal to bring the Farmers and all kinds of buyers on a single platform so that the Farmers can sell their products without the involvement of a third party. Krishi Mart is intended to keep the trade and transaction details between the customers and buyers, also keeping the Farmers at the profitable end. The portal is available in various regional languages keeping the Farmer at ease while updating the details of their products. Farmers can also have access to the portal on their mobile phones through the Krishi Mart app, where the Farmers can sell their products within two categories: small scale orders, large scale orders. Small scale orders will have a fixed rate, and the large scale orders will be placed on the basis of highest bid on that particular order. If some perishable products are not sold within a particular time frame, farmers can sell them outside of the Krishi Mart as per their preference.***
Keywords: farmers portal, sentimental analysis, ecommerce, android, web, online grocery shopping

I. INTRODUCTION

'Krishi Mart' is an online portal for connecting farmers, wholesalers, retailers and customers on one common digital platform. Through this portal the farmers can easily and directly sell their produce to the consumer without any involvement of a third party. This project intends to keep the trade and transactions between the farmer and the consumer only so that the whole profit is kept with the farmer and not shared with any third party.

The portal supports multiple regional languages so that the user can operate it as per his/her convenience. Through registration and login into the portal the farmers can update relevant details about the products to be sold and the consumers can buy products directly from the farmer of their choice. The products will be sold through two mediums that is, small scale orders and large scale orders. Farmers will be able to set a fixed price for the small scale orders; whereas the large scale orders will have a base price which will be bid upon (and the highest bidder will be able to buy that order). Perishable products would be sold in a particular time frame so further, the vendors can sell them fresh. The details of the entire transaction will be kept with the farmer and the consumer. Finally, after completing the transaction, the user has been provided with two choices: (i) Picking up the order from the farmer or, (ii) Getting the order delivered through a delivery service

Thus 'Krishi Mart' proves to be an innovative way to cut costs, promote our farmers, and encourage people to buy locally.

II. REVIEW OF LITERATURE

Reference [1] focuses on connecting Farmer to the customer via an application, chatting option for Farmer and Customer. and providing knowledge to the farmers by the means of government schemes available to them. It also contains GPS location storage into the system database for location of the farmer. Multiple language options for ease of understanding. Along with that a view and comment option and notifications to the farmer and customer from the server side.

It was also found that [1] can be used so that farmer can be connected directly to the customer and the selling can be done accordingly. Since the farmer would be dealing with the customer directly so the prices of the products offered by the farmer to the customer will also be affordable to the customer. Although the developers implemented the chat option, guest login, multiple language feature and GPS location feature; [1] does not have the bidding feature and is in the form of a website only.

Reference [2] proposed an application that aims for agricultural yield improvement, and enhancing transparency in the agriculture commodity marketplace by providing market price information, facilitating collective buying of inputs and collective selling of produce. Farmers rely on the weather forecast for their crop yields, and [2] proposed a function of weather forecast for farmers to query for the temperature and humidity required for crops.

Although [2] addressed the key problems of getting the market updates of different products, weather updates, multilingual support; it did not support any kind of trading system. It was an update-based application.

Information and Communication Technology (ICT) has generated possibilities to solve different problems of Indian farrmers. High tech ICT technologies ranging from agricultural product development, marketing, distribution to training of agricultural sector personnel, etc. has helped agricultural sector around the world. [3] proposed an idea such that information relating to the agricultural sector would be available to the ultimate users – the farmers for optimizing their productivity and income. Ectension and advisory services, with the help of Information Technology, would be available to the farmers on round the clock basis.

Although [3] focused on the need to tailor rural ICT policies, it failed to incorporate net banking, and online buying and selling. It was observed that IT must be usable to the farmers, i.e., making IT farmer friendly, rather than making farmers IT friendly.

[4] proposed an app that provides a platform for farmers who use smartphones. They get the real time updates about the vegetables, fruit rates of Indian markets and they sell their products accordingly. The authors of [4] also proposed a feature where farming related notices are added by government, and farmers are notified about different schemes. Depending upon market conditions, the rates of the vegetables and fruits are predicted. Additionally, weather information is provided which helps farmers to plan for the next couple of days. The farmers get realtime market conditional updates, and notices from government; yet it was observed that the application was limited to farmers using smartphones, and online trading and transaction was absent.

Krishi Ville, and android application that takes care of the updates of different agricultural commodities, weather forecast updates, and agricultural news updates; was proposed in [5]. The authors aim towards developing a mobile phone-based solution that would help in farm's management, lead to agricultural yield improvement and help in care/maintenance of the farms. It would help farmers get one stop solution to all Agricultural information needs, location specific information delivery and highly authentic and reliable database on agriculture and allied sectors.

Although the application was designed as per the convenience of Farmers in India, the authors of [5] didn't mention about support for various regional languages, which if included, would provide ease of access to Indian Farmers.

III. REPORT ON PRESENT INVESTIGATION

A. *Requirement Analysis*

1) *Scope:* This project consists of a mobile application as well as a website built for farmers to sell their produce and users to buy the products. Krishi Mart will target the farmers and buyers all around India. It is built in such a way that it's operation will be feasible and simple for users who are both technically equipped and those who are not. Krishi Mart is available on Mobile and Web so that no user misses its benefits.

2) *Feasibility Study:* In the making of the project we are using the below technology stack of which most are freely available platforms and hence there is not much need for monetary requirements. Also, the following tools are quiet user friendly and easy to operate which makes development cost and time efficient.

a) Android Studio - Java (for mobile app development)
b) ReactJS (for web app development)
c) Firebase (for Database Management, Customised Bidding Platform and Backend)
d) Google Translate (for regional language translation)
e) Machine Learning (for suggestions, feedback, rating and reviews)

3) *Software Requirements*

a) Android version 6 or above
b) iOS version 10 or above
c) Google Chrome version 72.0 or above
d) Mozilla Firefox version 68.0 or above
e) Internet Explorer version 11

B. *Problem Statement*

A Web Portal and Mobile App for farmers to sell their products, and for consumers to buy fresh vegetables right from the farmers. This portal will help farmers to store their crop details which is to be bought by buyers. The buyers after placing their orders, must be able to select between two options: to pick up from the farmer itself, or place the order for home delivery. (Note that if the buyer wants a home delivery, the Farmer must not be charged for the delivery services. This project majorly focuses on the best possible way to benefit farmers. Also the middlemen such as retailers, wholesalers, etc. should be reduced as much as possible).

C. Project Design

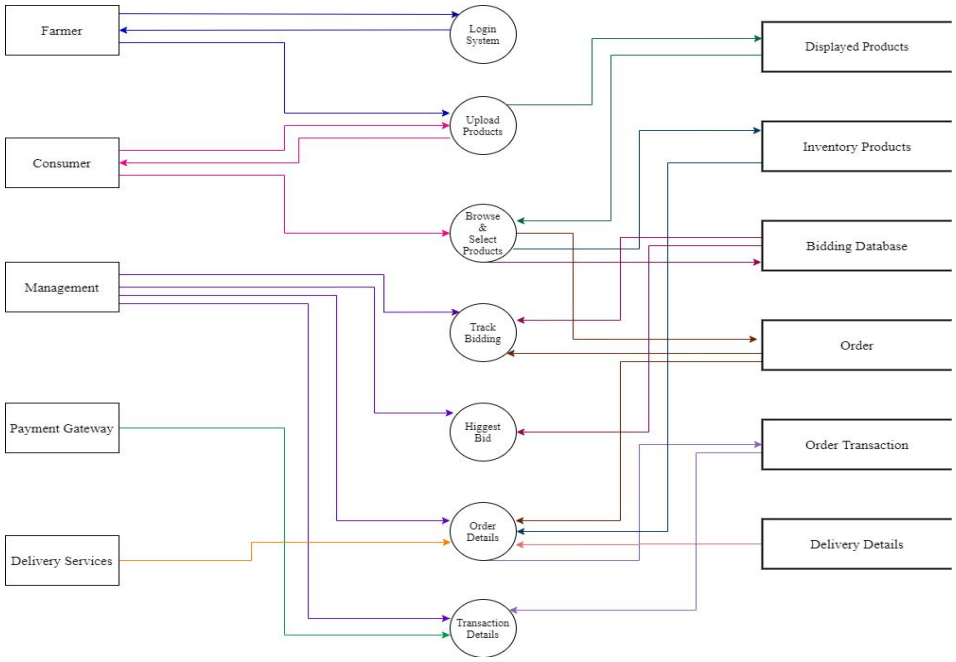

Fig1. Data Flow Diagram

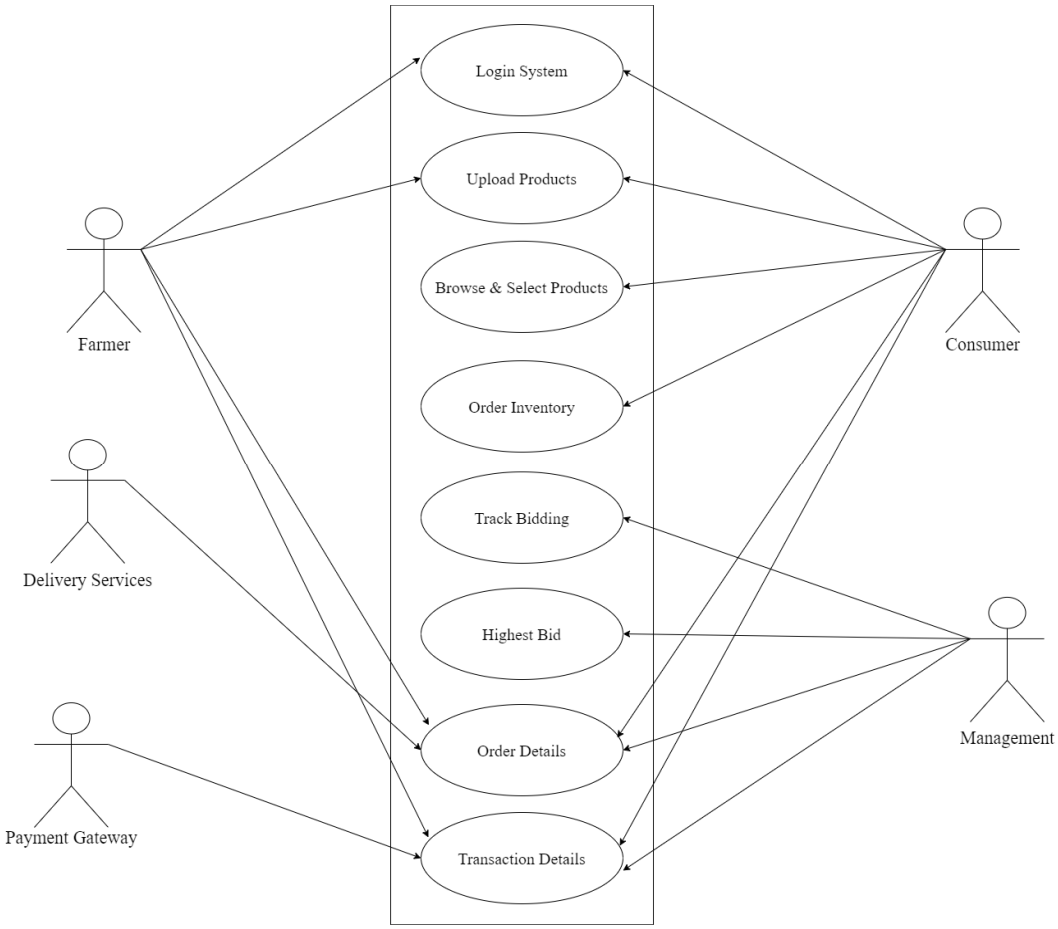

Fig 2. User Modelling Diagram

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue V May 2021- Available at www.ijraset.com

D. Methodology

The farmers can operate through any of the 2 applications, that are: Web App and Mobile App as per their convenience and the consumers can operate through application and portal. The app will be started with a video introduction about how to use the application and the registration will be done at Maha-E Seva Kendra.

The software will support multiple regional languages according to the preference of the user. After logging in to the application or portal; the farmer can update about their products with the relevant details (price, quantity, crop details, etc). The products will be sold through two mediums that is, small scale orders and large scale orders.

After placing the order, the user proceeds to the checkout section, where the user selects the mode of payment (either net-banking, credit/debit card or Google Pay). After completing the transaction, the user is provided with two choices; picking up the order from the farmer or getting the order through a delivery service (delivery charges will apply to the consumer and not to the farmer).

The details of the entire transaction will be kept with the farmer and the consumer. Perishable products would be sold in a particular time frame so the further vendors can sell them fresh. The search results will show the nearest farmers or the user can sort using reviews and ratings.

IV. CONCLUSION

It is envisaged to make available relevant services to the society through the use of information and communication technologies, to supplement the existing delivery channels available. Krishi Mart is an endeavour in this direction to create one stop shop for meeting all needs of a buyer by a farmer. With this Indian Farmer will not be required to sift through a maze of third parties or agents.

Once in the portal, a consumer will be able to get all relevant product details on desired products. This information will be accessible in the language he or she understands. Farmers will also be able to gain valuable feedback and reviews by the consumers through the feedback module specially developed for the purpose.

V. RESULTS AND DISCUSSIONS

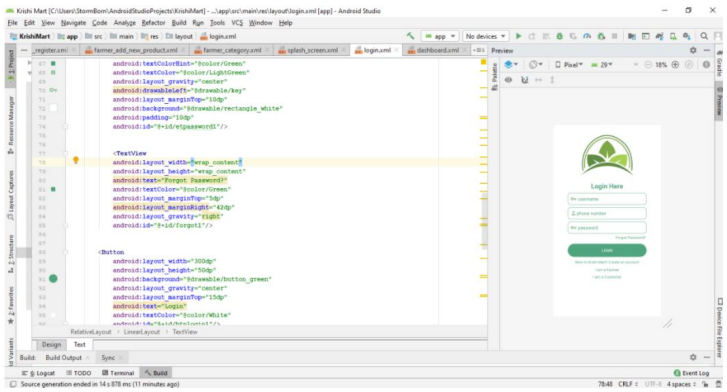

Fig 3. Login Page on Android Studio

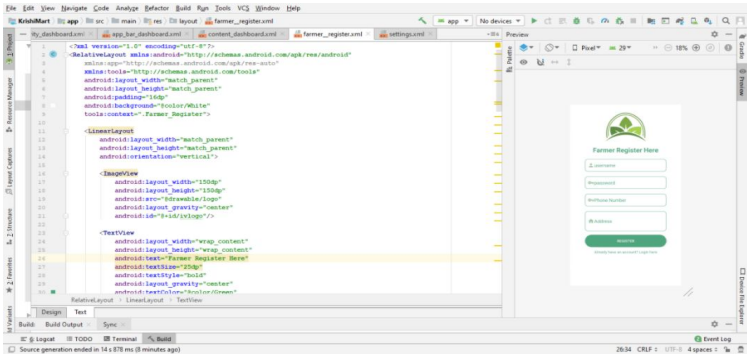

Fig 4. Farmer Registration Page Design on Android Studio

Fig 5. Website Home Page

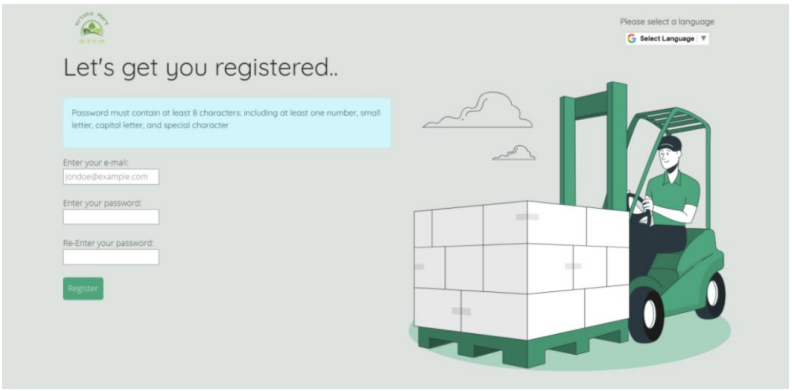

Fig 6. Website Registration Page

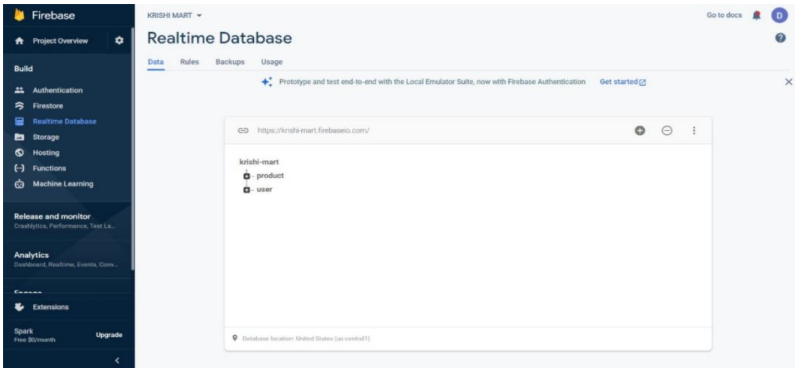

Fig 7. Firebase Realtime Database Structure

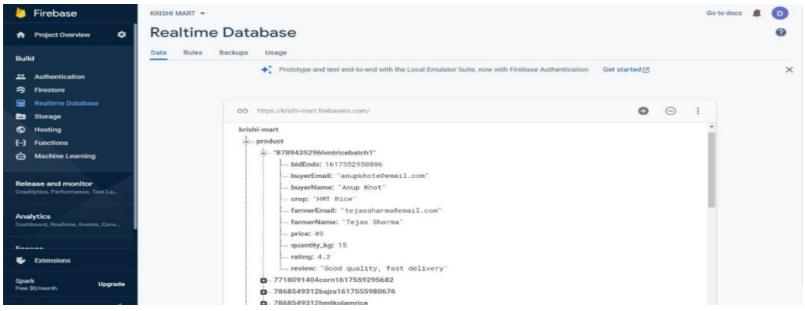

Fig 8. Product Database

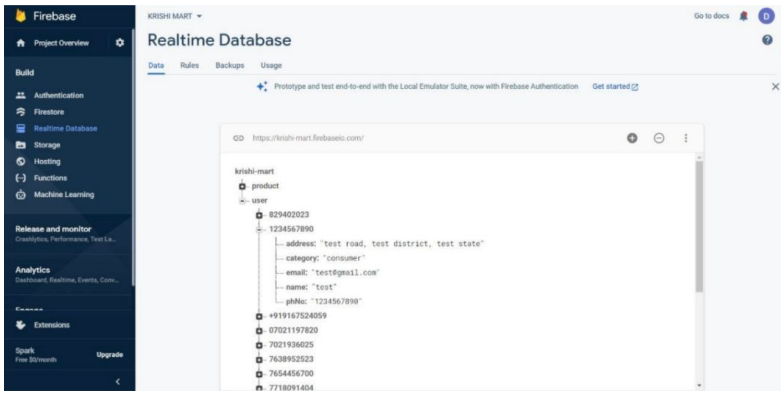

Fig 9. User Database

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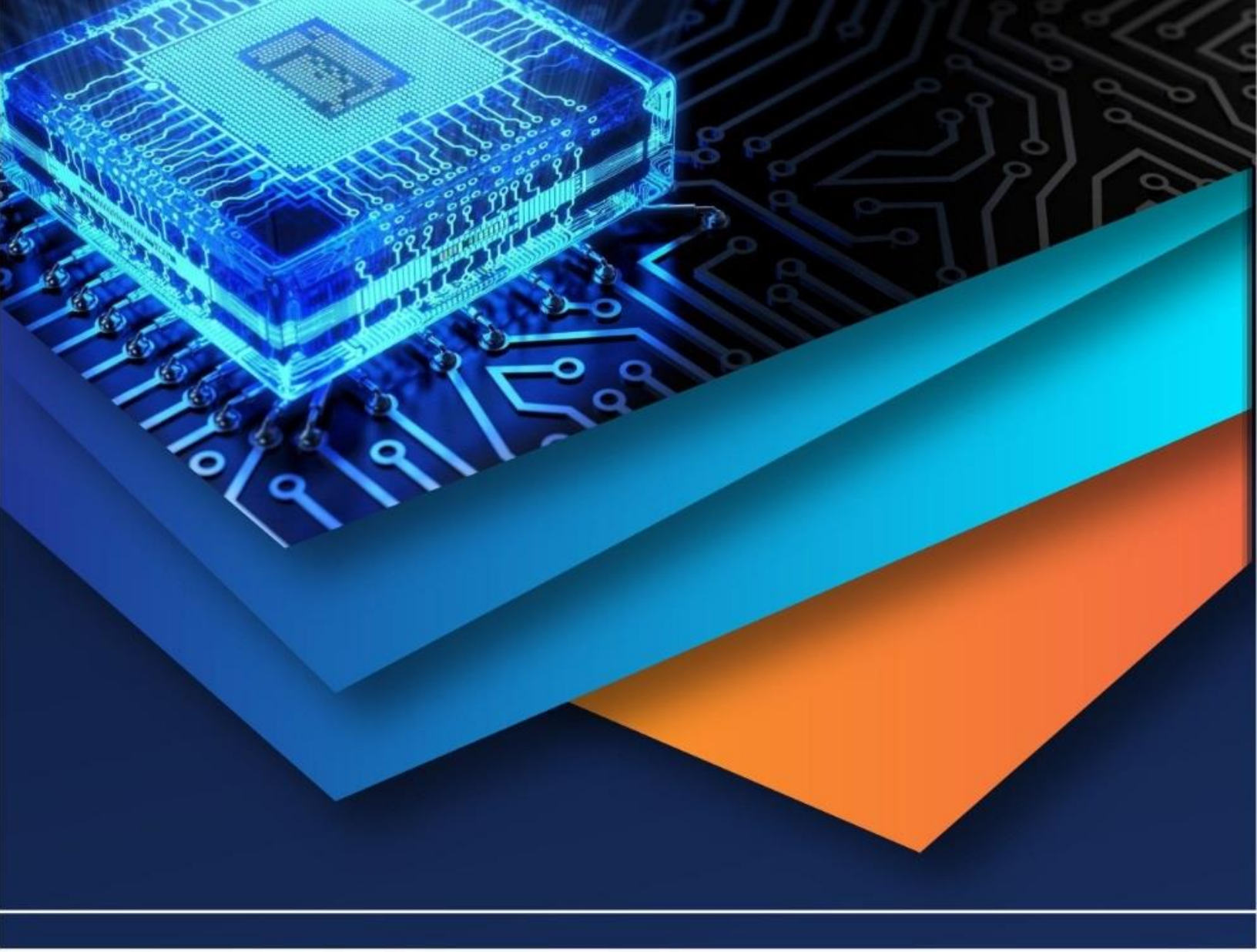

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