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Supervise and Apprehension of Students Presence using RFID

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Abstract: ***Student attendance is now recognised as one of the most important variables or issues that represent academic accomplishments and performance at any university, as opposed to more time-consuming and wasteful methods. Differing programmed distinguishing proof advances have been more stylish, for example, the wireless technology like Radio Frequency Identification (RFID). A broad look into and a few applications are delivered for exploiting this innovation. An RFID tag or signature is used to send data from a remote innovation known as RFID as the reason for recognising an item via radio waves to RFID for each user. The present investigation centers around proposing a RFID based Attendance Management System (AMS) and furthermore data administration framework for a scholastic area by utilizing RFID innovation notwithstanding the programmable Logic Circuit, (for example, Raspberry Pi), and PHP Server.***
Keywords: RFID, Raspberry Pi, Attendance, Students, Server.

I. INTRODUCTION

Students are required to sign and write their names on the attendance roster when using a manual method of documenting attendance. Problems with this strategy include unnecessary time waste and inadequate documentation, such as students neglecting to sign the attendance sheet or writing on behalf of absent classmates. RFID technology is used to construct an automated system that eliminates the deficiencies of the human attendance method. Various factors may prevent some students from attending study hall, causing them to perform inadequately on exams. Therefore, in order to improve academic performance, it is essential to monitor homeroom attendance. Students must have attended at least 60 percent of class time in order to take the course examination. The manual strategy for gauging participation in schools and universities in instructive foundations throughout the years has become a thing of concern. In the manual technique for gauging participation understudies are required to record their names and sign the participation list. The issues related with this strategy differ from pointless time wastage to ill-advised documentation, understudies neglecting to put down their names on the participation rundown or understudies composing in the interest of different understudies that are missing from the class. The RFID based programmed participation framework incorporates the RFID per user, RFID labels, PC framework, and host framework application. The RFID based programmed participation framework is utilized for naturally taking understudies' participation and offering cautioning to understudies on instances of low participation which could corrupt the exhibition of understudy or keep the understudy. The RFID based programmed participation framework is utilized for naturally taking understudies' participation and offering cautioning to understudies on instances of low participation which could corrupt the exhibition of understudy or keep the understudy from taking the course assessment, if the class participation rate is under 60.

II. EXISTING SYSTEM

Gauging participation by calling names or marking on paper is very time-taking and shaky, and furthermore this strategy is wasteful. This at times have come in basic structures like move calls, while in all the more fascinating cases, can be positions like astonishment tests, additional credit in class, and so forth. These methodologies are anyway tedious, upsetting and difficult on the grounds that the important talk time that could some way or another been utilized for addresses is devoted to understudy participation taking and some of the time not exact. Notwithstanding every one of these difficulties, the attendances are recorded physically by the coach and accordingly it might prompt individual blunders.

Disadvantages of existing model:

1) More tedious
2) Lack of security
3) Human blunder
4) Lack of development

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III. PROPOSED SYSTEM

In this System, every understudy is allotted a RFID Tag that has an extraordinary ID. At whatever point the Student enters the school premises, he will swipe that card close to the Reader. The Reader will peruse the Student's Information and on the off chance that that data is effectively coordinated, at that point the understudy is allowed to enter. After some time, message will get showed on LCD demonstrating that the participation has been taken.

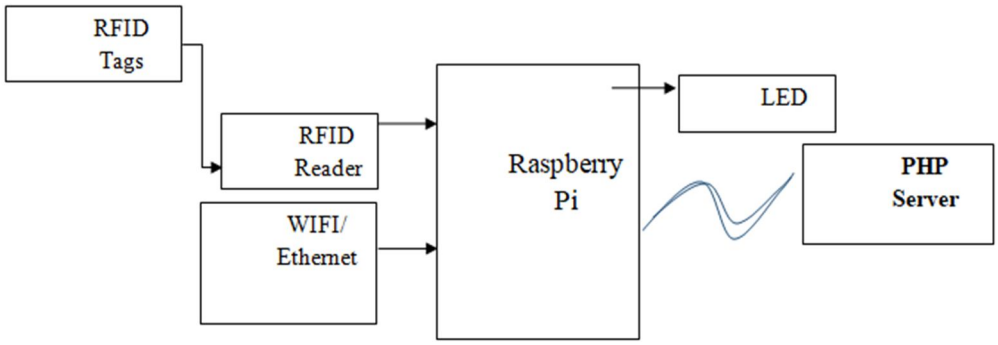


Figure 1: Block Diagram of a Proposed System

We utilise RFID in our operations. The objective of the Radio Frequency Identification and Detection framework is to promote information transmission via the small device known as the label, which is scanned by an RFID reader, and to process it according to an application's requirements. The data conveyed by a label provides verification of location or identification, as well as additional information about the branded item, such as the purchase date, colour, and price. An RFID device typically consists of a radio receiving wire and a microchip mounted on a substrate.

RFID labels are designed to respond to RFID devices' transmitted signals. This enables label reading from a distance, in contrast to different types of verification innovation. A RFID (Radio-recurrence ID and location) peruser is a gadget which is utilized to speak with RFID labels by accepting and transmitting signals. These signs utilize radio waves for remote correspondence. RFID tag is applied to items, people or creatures to distinguish and follow them. The ID is done through an interesting sequential number.

This subject covers the interfacing of a latent RFID framework with microcontroller. The code of RFID tag is likewise shown on a LCD interface. The free source code for the program is accessible in C. A RFID module fundamentally comprises of two sections, in particular, a tag and a peruser. A common RFID framework comprises of a reception apparatus, a handset and a transponder (RF tag). The data (the one of a kind sequential number) to be transmitted is put away in the tag or transponder.

Advantages of proposed system:

1) Smart and secure
2) Easy to access
3) Avoids duplication and errors
4) Tracking is easy
5) Less paper work

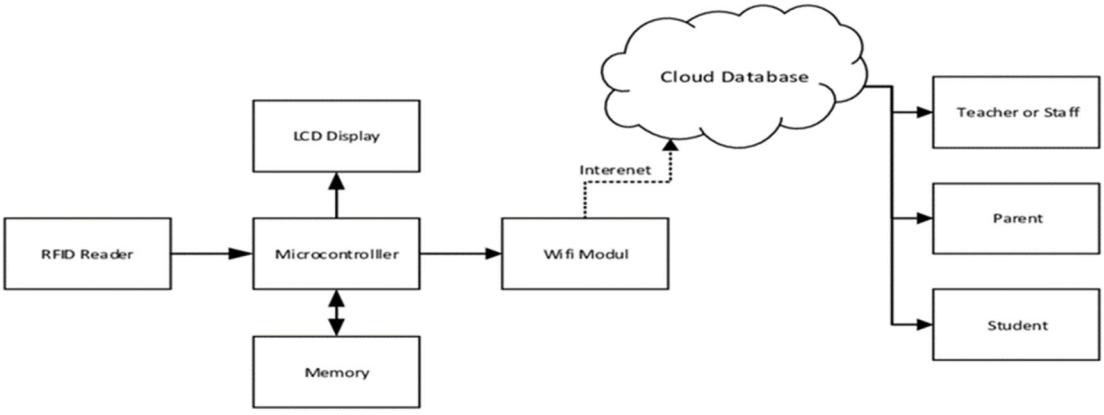


Figure 2: Architecture of Supervise and Apprehension of Student Presence using RFID

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IV. HARDWARE IMPLEMENTATION

In our work we uses Raspberry Pi, RFID as Hardware. The Raspberry Pi organisation in the United Kingdom designed and constructed a credit card-sized computer with the intention of teaching elementary software engineering to schools and anyone interested in computer hardware. Three distinct Raspberry Pi board configurations are manufactured by Newark Component 14 (Premier Farnell), RS Components, and Egomania, who are authorised assembly administrators. These businesses sell Raspberry Pis online. Red coloration and the absence of FCC/CE certifications distinguish Egoman's Pi from other Pis, which are only available in China and Taiwan. The apparatus produces the same amount of output overall.

RFID is a tracking technology capable of identifying and validating tags affixed to any object, person, or animal. The generic term for devices that use radio radiation to identify individuals and objects is "radio frequency identification and detection."

LCD (Liquid Crystal Display) technology is used in the displays of scratch pads and other miniature computers.LCD technology, along with gas plasma and LED technology, enables presentations that are substantially thinner than cathode beam tube (CRT) technology. LCD screens consume significantly less power than LED and gas displays because they obscure light rather than emitting it.

V. RESULTS AND DISCUSSION

In our work, we uses Raspbian OS and Python programming Language for developing of this work.

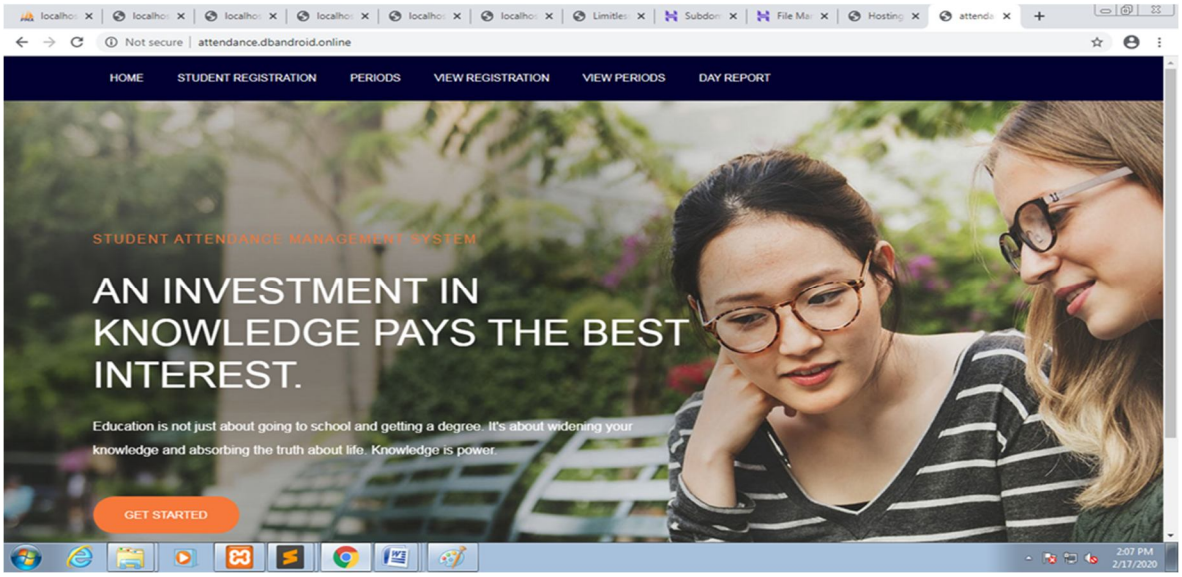


Figure 3: index page

From the above figure shows the diagram and design of website page

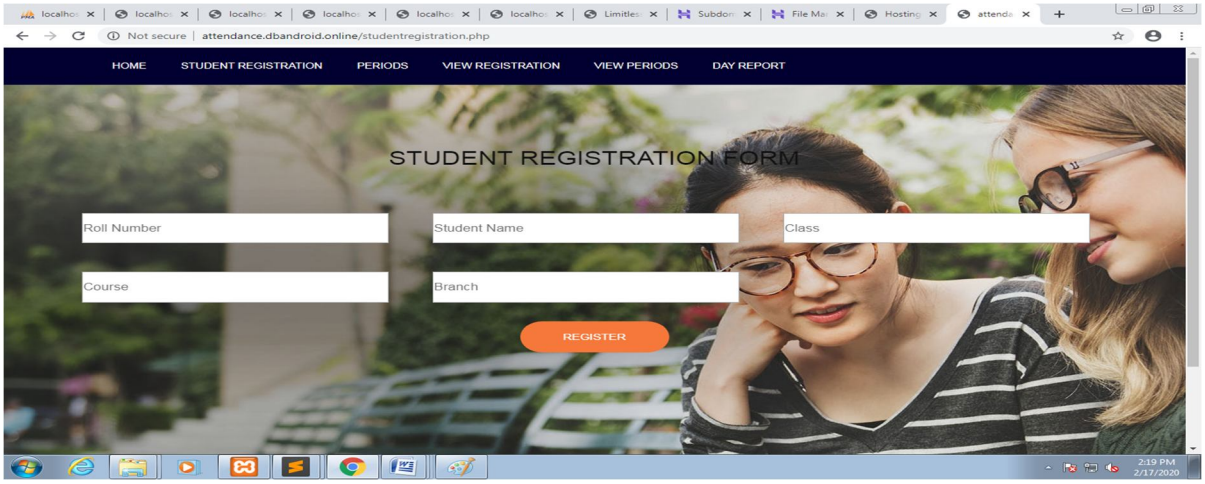


Figure 4: Student Registration Page

From the above enrollment page shows how a page looks when the understudy will tap on the understudy enlistment section.

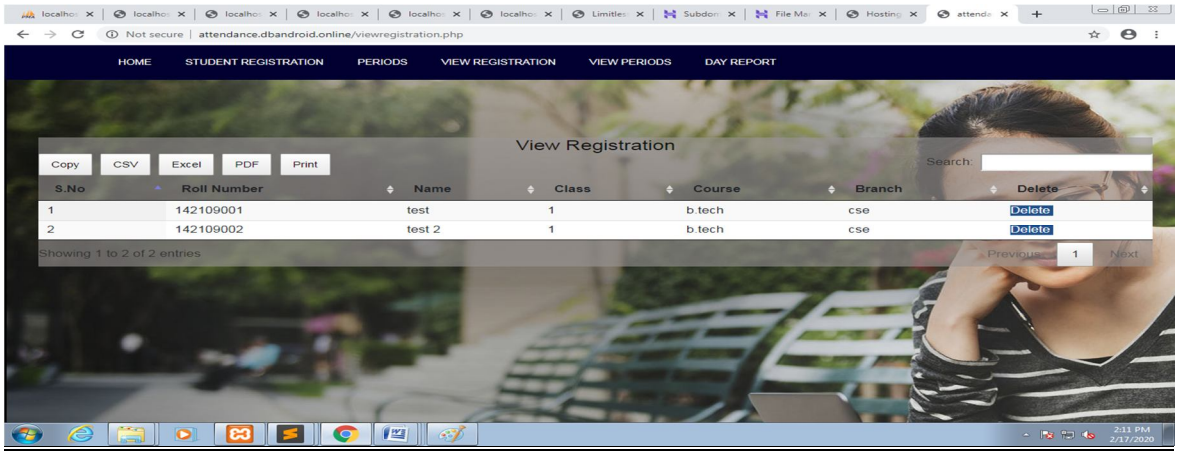


Figure 5: periods Registration Page

From the above figure of times of enlistment page show the name of understudy followed by the classes joined in and their separate branch and their course.

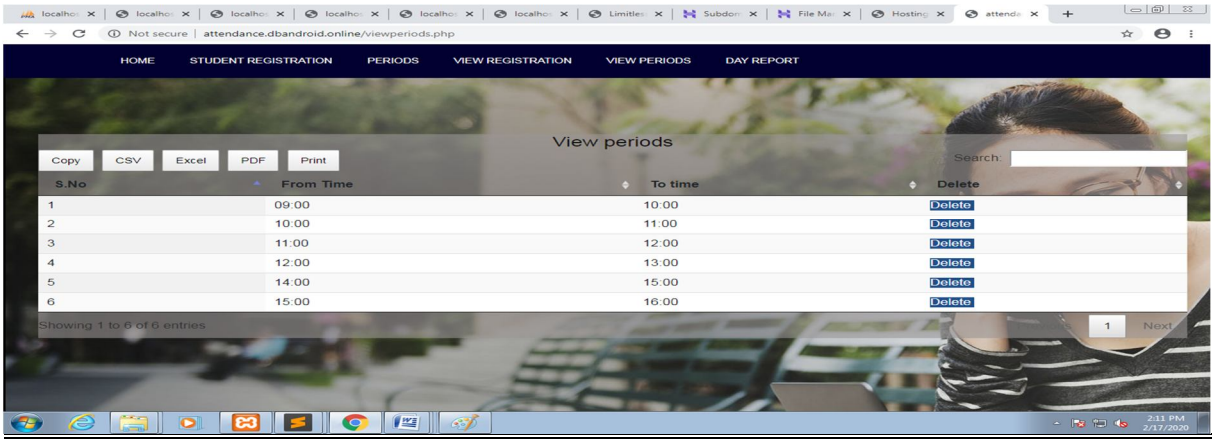


Figure 6: View Registration page

From the above figure of the view enlistment page gives perspective on number of periods and the time allocated starting with one period then onto the next period and here we have picked the 24hour time group.

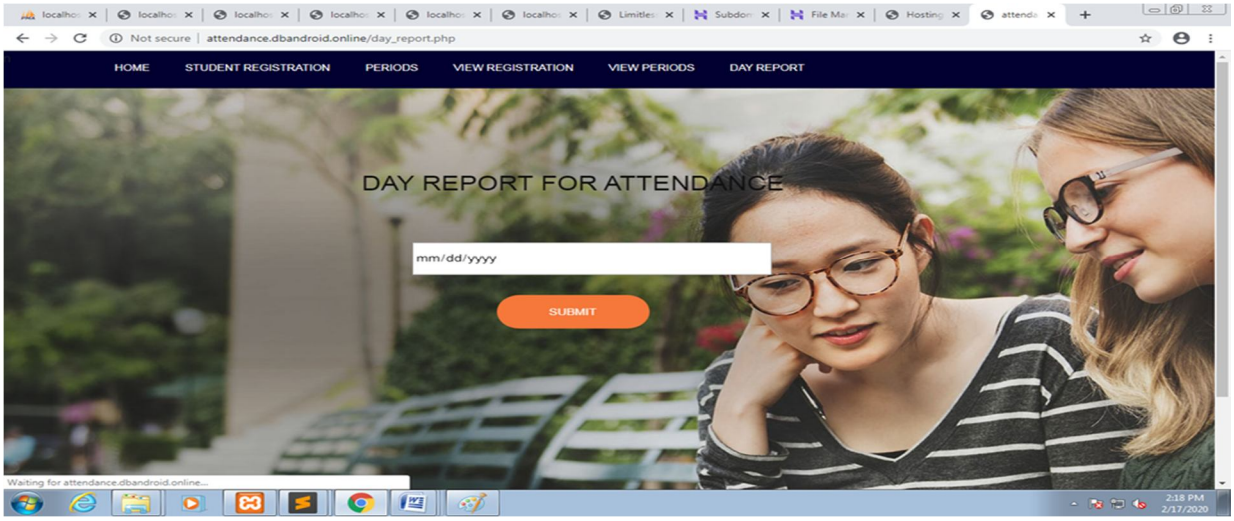


Figure 7: View Periods page

From the above figure of the view time frames page shows the day report of every understudy and when the understudy need to think about their day by day participation they can ready to enter the day, month, year and submit they can ready to know.

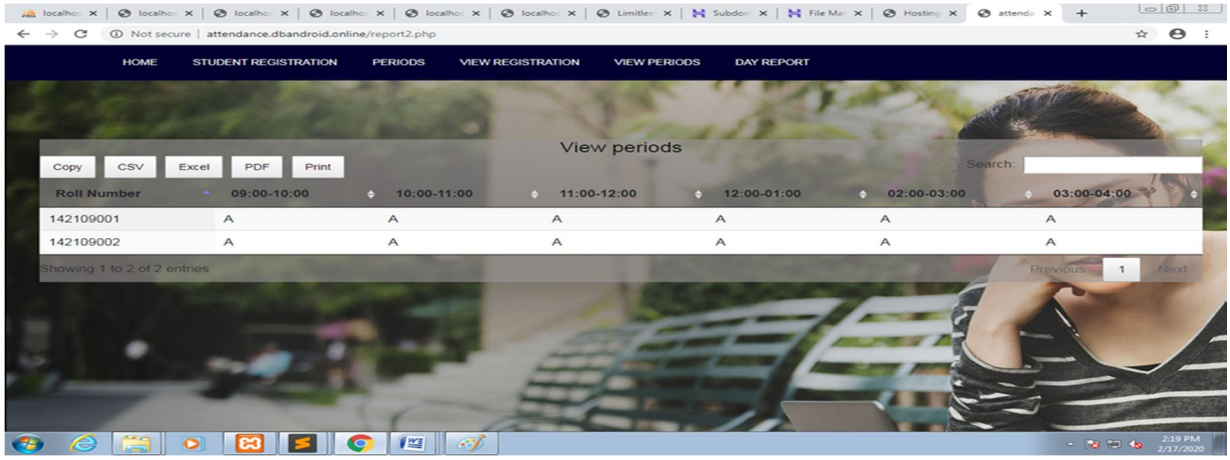


Figure 8: Day Report page

From the above figure of the day report page shows the quantity of classes the understudy has joined in and from which timeframe they had present.

VI. CONCLUSION AND FUTURE ENHANCEMENT

An understudy participation and data framework are planned and actualized to deal with understudy's information and give capacities to following understudy participation, analysing the grades of undergraduates and providing information on the schedule, address, and room number, among other information pertaining to undergraduates. In addition, the proposed structure increases staff productivity by eliminating the need for unnecessary documentation and archive data storage space. The progression of the framework's development produced firm support for the executives' framework for a scholastic division employing RFID technology and a microcontroller board with PHP Server. It is without question an effective execution.

Future enhancements could include a web camera that uses image processing to autonomously determine and record a student's presence at a facility. We can add Location tracking with improved technologies to track the location of the students continuously.

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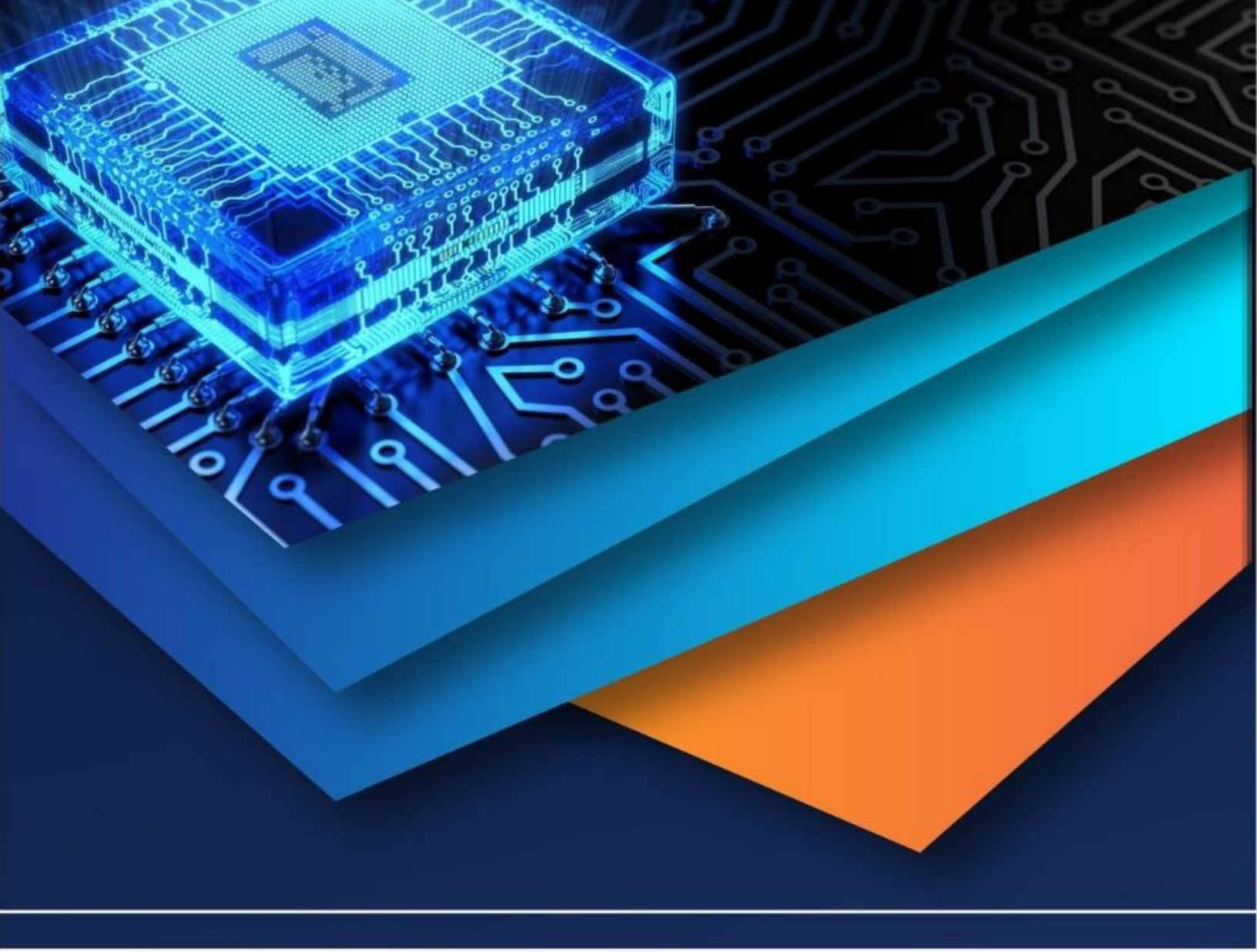
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