International Journal of Scientific Research in Engineering and Management (IJSREM)
Volume: 07 Issue: 05 | May - 2023 SJIF 2023: 8.176 ISSN: 2582-3930

A Novel Blockchain Method for Collegian Hubspot

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Abstract - Every schools and colleges will have their own websites. In this paper we discuss the implementation of single web application for all schools and colleges. Each college website can contain their college and students information. It can also include various payments like college fees, fees for enrolment in sports and cultural activities and many other fees payments. In today's technology, all the payments are becoming online. No need to go to the respective offices to make the payments. So all kind of payments in colleges can also be made online. Wherever there is payment, security plays a major role. So making all the payments in colleges online through their websites and also providing security to that through the blockchain technology. We can implement this system using blockchain technology without mining which will also reduce the complexity in implementation.

Key Words: Blockchain, Web Application, Mining, Security, Distributed Ledger Technology, Hash Keys.

1. INTRODUCTION

Blockchain doesn't use centralized server, it uses decentralized technology, it maintains a digital ledger that stores records transactions securely and transparently.

The first block in the blockchain is called the genesis block, and the first block's hash value will be zero. The second block contains the hash value of the previous block and the data related to the transaction which contains the transaction ID, the amount transferred, and the name of the sender and receiver of the amount. For this block, the hash value will be calculated and it is used in the next block. These blocks in the blockchain are immutable and irreversible which means it is not possible to find the data from the hash value that has been generated.

The main advantage of using blockchain is its transparency, which allows for greater accountability and trust between parties. It also eliminates the need for intermediaries, such as banks or brokers, which can costs and increase efficiency.

One challenge of blockchain is its scalability, as the network can become congested and slow as more transactions are added. Another challenge is the lack of standardization and regulation, which can lead to confusion and potential fraud.

Blockchain has been applied to various industries, such as finance, where it is used industries, such as finance, where it is used for secure and efficient cross-border payments. It is also being explored in healthcare, where it can improve the tracking and sharing of patient data while maintaining privacy.

Blockchain technology has the ability to transform industries and create new business models. Some experts predict that it could eventually replace the traditional system of governance and create a more decentralized society.

In the field of education, blockchain has become more beneficial, Blockchain in instate can be used to store secure student data. They have ownership credentials, awards certificates, and academic identity. Blockchain builds transparency among educators, management, and learners by building trust among organizations.

Technological advancement in the field of education will completely change the way, courses are taken up and utilized by learners. interference of blockchain in Edu-tech will automate the course progression and make the path of the learners with the help of smart contracts developed on the blockchain providing complete control of learners.

There are several benefits in the educational sector, some of them include copywrite protection, transcription, and more.

Security for payments plays a very important role. The transaction details should not be shared with anyone. The details should only be able to access by the sender and the receiver of the transaction. It will be maintained in the ledger which is private so it can be accessed by the sender and receiver of the transaction. In the collegian Hubspot web application which contains the selling and buying of books and application forms for sports and cultural events, here we maintain a private ledger for storing transaction details as explained above.

2. PROBLEM STATEMENT

All the colleges will have their own websites but the problem is some colleges will maintain their websites and most of the colleges don't regularly maintain their websites and also they don't have data security. The colleges will have all the

students related data that will be stored in the server and that data can be stolen. They don't have the ownership of the data. So making a common platform for all the colleges and providing the data security and using blockchain will enhance the student data security.

3. PROPOSED SYSTEM

This project is a single platform that contains all the student information, community or forum where students, alumni's and faculties can communicate with each other, faculty profiles, separate login for students and faculties where faculties can upload the student attendance, score cards and other student related information.

It also has application for different activities like cultural activities and sports during college festival, library card and student identity card.

This project also provides previous project details and funded project details. It also contains payment gateway for applications involving payments like entry fees for different activities and application fees.

3.1 Objectives

This project provides single platform where we get

- Placement activity details.
- All student details like their score cards and their achievements.
- Alumni forum or community.
- Sports related page containing sports items information and enrollment application for different sports in different programs.
- Applications for students to enroll in cultural activities and sports during college festival.
- Payment gateway for applications involving payments like entry fees for different activities and application fees.
- Faculty details.
- Previous project details and funded project details.
- Uploading daily student attendance by faculties.
- Application for getting new student identity card.
- Application for library card.
- Library book details.
- Provide a platform to sell and buy new notebooks and text books.

3.2 Advantages of Proposed System

- Reduces the workload of faculties.
- Students can get all the resources through online.
- Students can fill up all their applications online.
- Students can make their payments related to college like application fees, entry fees for sports and cultural activities.
- Community or forum where students, faculties and alumni's can interact.
- Student profiles are maintained which consists of their score cards and achievements.
- Blockchains, such as Ethereum, provide a trusted platform where you receive encrypted data.
- Web3 servers are on a decentralized network, so it is not possible for a single server going down to disrupt an entire network.

4. METHODOLOGY

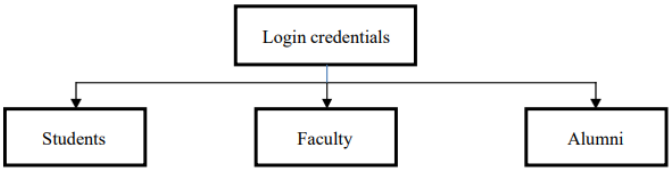


Fig -1: Website Login Credential

The above figure 1 shows the login credentials for the web application of this project. This project provides single platform where students and faculties can login and interact, get placement activity details, fill all types of application forms, make payments, students can get all their academic details.

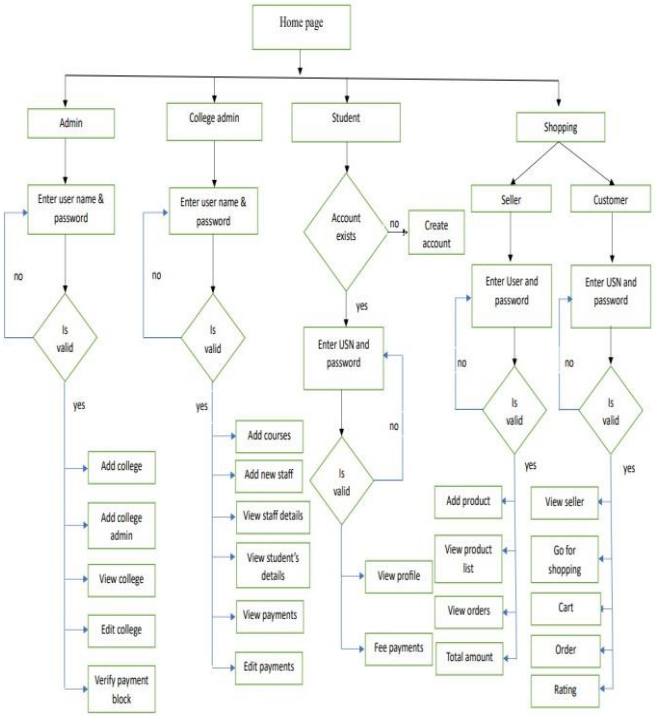


Fig -2: System Architecture

The above figure 2 shows the system architecture for the web application for our project. Through this web application

students, faculties, alumni's and college principal's can login through this site. If the username and password is valid, then they can login to the site and can access the content in the web application. Otherwise, they are not allowed to access the content of the site until they enter the valid username and password. Through this site students can get sports related information and can fill the different sports applications and can pay the entry fees of it, if it is present. Students can also fill the application for college identity card, library card and any other applications and can pay the respective fees for it. Students can also get the details of cultural activities and they can enroll their name into it by filling the forms through this site. Students can buy books through this site and can get previous project details. Students can also get academic details and placement related updates.

Faculties can maintain student details, upload student attendance, upload resources, library book details and they can post placement related updates.

Admin can create the account for faculties and can sell the books through this web application.

It also has a community or forum where students, faculties and alumni's of same college can communicate each other and also students of different college's can communicate each other

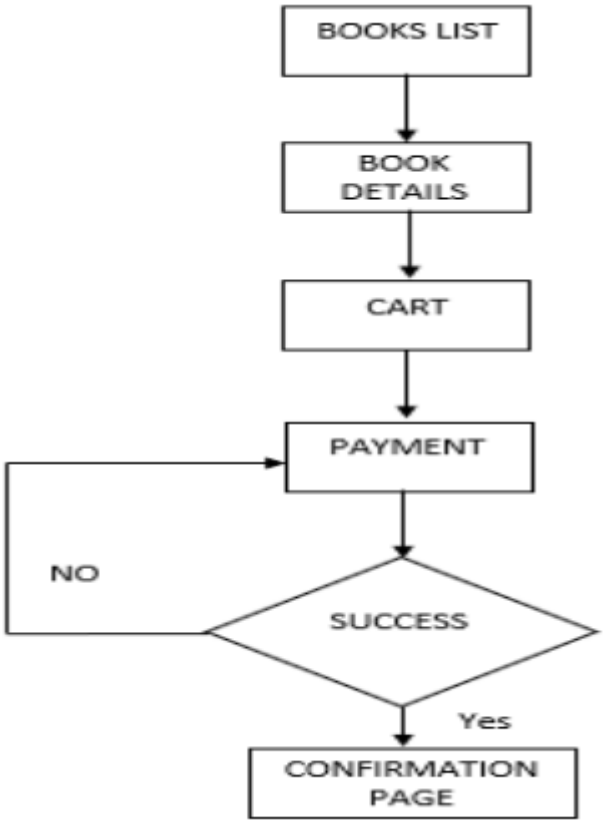


Fig -3: System Architecture for buying books

The above figure 3 shows the system architecture for buying books. The website has all the books list, the student can see the book detail by selecting the book. They can add the books which ever books they want to the cart and they can choose the payment mode and make the payment in the payment page. If it is success, they get the confirmation.

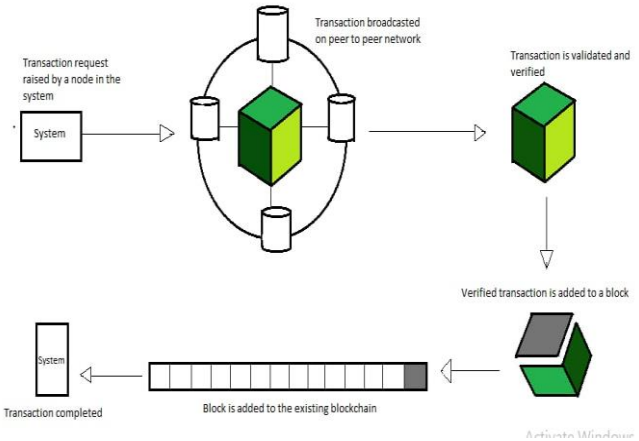
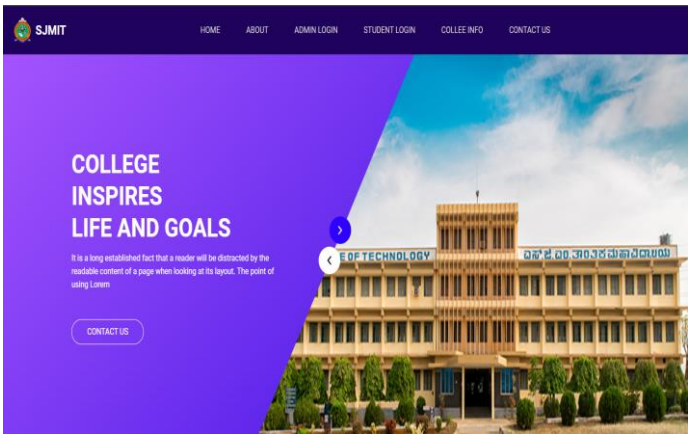


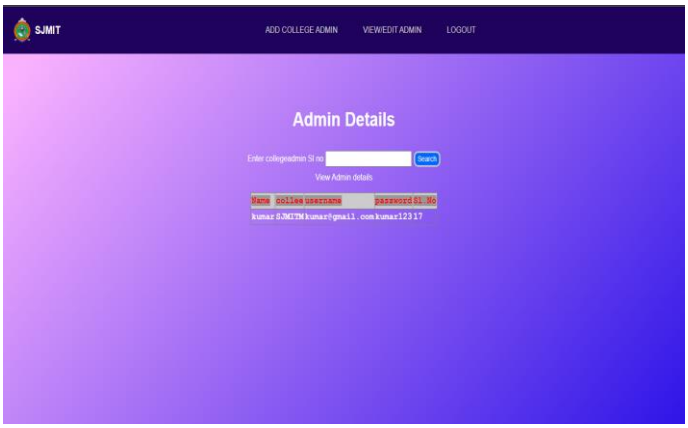
Fig -3: Blockchain Architecture

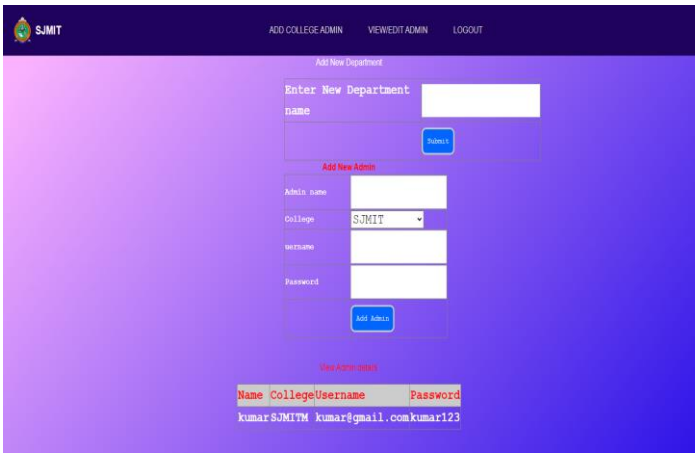
The above figure shows the architecture of blockchain which is used for payments in the web application. When a transaction is requested by a node, the transaction is broadcasted on a peer-to-peer network. The transaction is validated and verified. After the transaction is verified, it is added to a block in the existing ledger in the blockchain. Then the transaction will be completed.

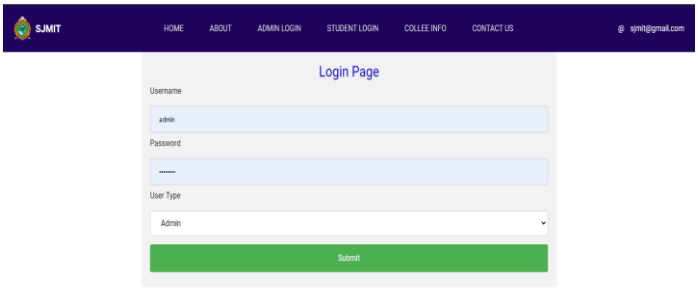
5. RESULTS AND DISCUSSION

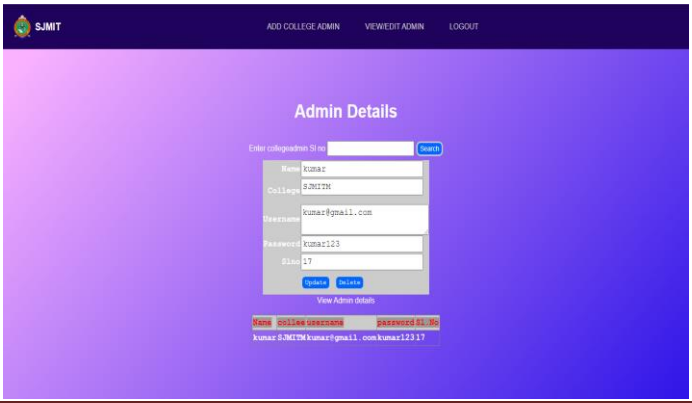
We have used HTML, CSS, JavaScript and Bootstrap for front end design of the website and Java, JSP and MySQL for backend. For payments, we have used blockchain. The snapshots of the websites are as below.











6. CONCLUSION

We have achieved designing a web application which is a common platform for all the colleges. It contains student information, community or forum where students, alumni's and faculties can communicate with each other, faculty profiles, separate login for students and faculties where faculties can upload the student attendance, score cards and other student related information.

It also has application for different activities like cultural activities and sports during college festival, library card and student identity card.

This web application also provides previous project details and funded project details. It also contains payment for applications involving payments like entry fees for different activities and application fees. This payment part is developed using blockchain helps to provide security.

REFERENCES

[1] N. A. Popova and N. G. Butakova, "Research of a Possibility of Using Blockchain Technology without Tokens to Protect Banking Transactions," 2019 IEEE Conference of Russian Young Researchers in Electrical and Electronic Engineering (EIConRus), Saint Petersburg and Moscow, Russia, 2019, pp. 1764-1768, doi: 10.1109/EIConRus.2019.8657279.M. Young, The Technical Writer's Handbook. Mill Valley, CA: University Science, 1989.

[2] N. R. Bagrecha, I. Mustafa Polishwala, P. A. Mehrotra, R. Sharma and B. S. Thakare, "Decentralised Blockchain Technology: Application in Banking Sector," 2020 International Conference for Emerging Technology (INCET), Belgaum, India, 2020, pp. 1-5, doi: 10.1109/INCET49848.2020.9154115.

[3] S. Sakho, Z. Jianbiao, F. Essaf and K. Badiss, "Improving Banking Transactions Using Blockchain Technology," 2019 IEEE 5th International Conference on Computer and Communications (ICCC), Chengdu, China, 2019, pp. 1258-1263, doi: 10.1109/ICCC47050.2019.9064344.

[4] Y. S. Bae et al., "Development of Blockchain-Based Health Information Exchange Platform Using HL7 FHIR Standards: Usability Test," in IEEE Access, vol. 10, pp. 79264-79271, 2022, doi: 10.1109/ACCESS.2022.3194159.

[5] N. Dahmani, S. A. Alex, S. G. Sadhana, S. G. Jayasree and T. P. A. Jinu, "Welcome Wagons: A Block Chain based Web Application for Car Booking," 2022 IEEE/ACS 19th International Conference on Computer Systems and Applications (AICCSA), Abu Dhabi, United Arab Emirates, 2022, pp. 1-6, doi: 10.1109/AICCSA56895.2022.10017821.

[6] P. Kumar, M. Kumar, K. B. Singh, A. R. Tripathi and A. Kumar, "Blockchain Security Detection Condition Light Module," 2021 10th International Conference on System Modeling & Advancement in Research Trends (SMART), MORADABAD, India, 2021, pp. 363-367, doi: 10.1109/SMART52563.2021.9676302.

[7] N. Sasikala, B. M. Sundaram, S. Biswas, A. Sai Nikhil and V. S. Rohith, "Survey of latest technologies on

Decentralized applications using Blockchain," 2022 Second International Conference on Artificial Intelligence and Smart Energy (ICAIS), Coimbatore, India, 2022, pp. 1432-1436, doi: 10.1109/ICAIS53314.2022.9742768.

[8] A. Yadav, D. Yadav, S. Gupta, D. Kumar and P. Kumar, "Online Food Court Payment System using Blockchain Technolgy," 2018 5th IEEE Uttar Pradesh Section International Conference on Electrical, Electronics and Computer Engineering (UPCON), Gorakhpur, India, 2018, pp. 1-7, doi: 10.1109/UPCON.2018.8596794.