PROJECT IDEA BRIEF FOR THE RESEARCH PAPER TITLED "Blockchain for General Digital Ledgers"

Team Members (PCS-35):

1. Kartik Gupta
2. Prayrit Srivastava
3. Ritik Nandan Gupta

Project Guide :

Asst. Prof. Pardeep Tyagi
(Department of Computer Science)

1. Proposed Title

Blockchain for General Digital Ledgers

2. Field of Invention :

Blockchain

3. Background (Reason to work) :

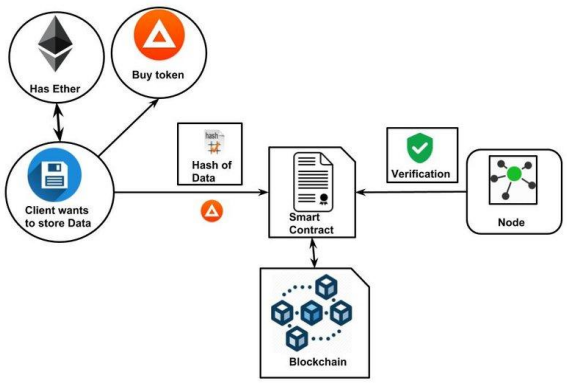
The absence of a novel solution that enables blockchain to be used in the use case of general ledgering and bill settlement is the prime motivation for working towards this project idea.

4. Objectives :

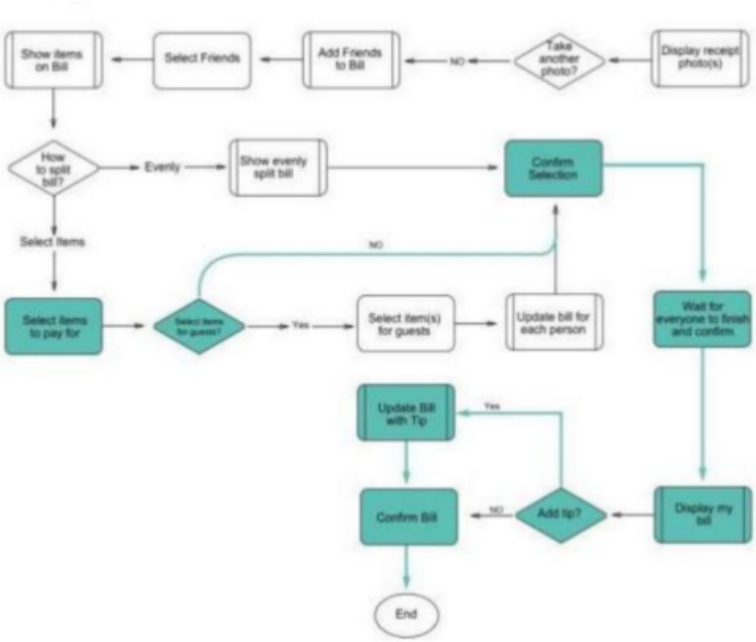
The objective of developing SimpleSplit is overcoming limitations of traditional blockchain systems by designing a digital ledger :

(i) the robustness and security of a Blockchain system,
(ii) be as accessible as a general commodity/currency,
(iii) have little or no transactional fees.

5. Figure / Model / Module / Flow chart/ Diagrams :



Caption: Data Workflow for SimpleSplit Smart Contracts



Caption: Flowchart for Bill Split Module

6. Claims (novel / innovative ideas)

Development of a digital ledger system that offers the robustness of a Blockchain system and can help users in carrying out digital transactions and bill settlement.

7. Apparatus/ Technology Used (Hardware / Software)

The objective of developing SimpleSplit are :

1. Javascript: used to create dynamic and interactive web content. It enables dynamic interactivity on websites when it is applied to an HTML document.

1. React.js: It's used for building interactive user interfaces and web applications quickly and efficiently with significantly less code than vanilla JavaScript.

2. Node.js: It is used for server-side programming, and primarily deployed for non-blocking, event-driven servers, such as traditional websites and back-end API services.

3. Lotion.js: It is used to create blockchain apps in JavaScript, which aims to make writing new blockchains fast and fun. It builds on top of Tendermint using the ABCI protocol.

4. PostgreSQL: It is used as the primary data store or data warehouse for web applications.

5. MongoDB: MongoDB is a tool that can manage document-oriented information, and store or retrieve information.

6. AWS: AWS allow application providers, ISVs, and vendors to quickly and securely host applications – whether an existing application or a new SaaS-based application. You can use the AWS Management Console or well-documented web services APIs to access AWS's application hosting platform.

8. Abstract

The general idea of blockchain has implications in almost every aspect where computers and computation have laid their foot on. However, there are domains where its practical feasibility is challenged by conventional alternatives. One such domain is general-purpose digital ledgers. This includes all ledgers ranging from basic lending to high-scale businesses.

The prime impedance to the use of blockchain technologies in the general digital ledger can be attributed to high transactional fees and a lack of available access to the general public. For example, Ethereum has an average transaction fee of $15 to $50 and can go up to $300 during busy periods. This makes running daily financial applications impractical on mainstream Blockchains.

Apart from this, financial settlement in cryptocurrency would be highly impractical due to the lack of accessibility of blockchain currency to the general public. Hence, a need of a medium is needed that could offer (i) the robustness and security of a Blockchain system, (ii) be as accessible as a general commodity/currency, and (iii) have little or no transactional fees.

Here is where SimpleSplit comes into the picture. simple split is a progressive Blockchain-powered web application that makes splitting bills as simple as ever before. From registering bills in a digital ledger to settlement, SimpleSplit comes to save the day. It aims to solve the problem of high gas fees by providing a heterogeneous multi-chain interchange and translation architecture, enabling customized side chains to connect with public blockchains.

It uses smart contracts to fulfil the purpose of settlement purposes. It offers robustness like a normal Blockchain system. It makes use of the Proof Of Work Consensus algorithm for the purpose.

9. End users

SimpleSplit has user base from anyone who needs to split bills be it individuals, small groups or a big circle.

10. Advantages

The advantages of the approach would be :

(i) An optimized approach to using Blockchain in the domain area of general ledgers.

(ii) Reducing the overhead of gas fees in a blockchain network.

(iii) Reliable and accurate settlement of bills by use of smart contracts.

(iv) A better user experience for the settlement of bills by the end-user.

11. Summary/ Conclusion

SimpleSplit is a progressive Blockchain-powered web application that makes splitting bills as simple as ever before. From registering bills in a digital ledger to settlement, SimpleSplit comes to save the day. Furthermore, the users can be notified by email or SMS so that they never miss an update. The application is well-designed to tackle all kinds of splits and supports multiple forms of payment (UPI, Stripe, Razorpay, etc.). Finally, SimpleSplit helps send IOU reminders in case someone forgets to pay on time. The application allows users to form groups and friends where they can chat with each other, discuss the bill(s) and pay securely with any payment method. The users need not install any external/third-party software to split their bills. SimpleSplit also enables users to split their bills by percentage, by shares, etc. The users can also request a pdf invoice of their payments in their email.
Security is an important aspect of our application due to financial data and personal information involvement. So, to tackle the problem, SimpleSplit stores all sensitive data on a cryptographically secured peer-to-peer blockchain network, making it invulnerable to most cyberattacks.

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