**PROJECT SYNOPSIS REPORT**

**ON**

**CRYPTO PAYMENTS ARCHITECTURE (CPA)**

**SUBMITTED**

**TO**

**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**

**FOR**

**INTEGRATED PROJECT (CS203 )**

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**Submitted By:**

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**Problem Statement:**

The rise of cryptocurrency as a means of payment has created a need for a reliable and secure web application that allows users to easily make crypto payments for consumer goods and services. There is a lack of applications in the current system to be able to easily make payments for day-to-day commodities using cryptocurrency.

To address these challenges, there is a need for a web application that simplifies the crypto payment process and offers a secure, fast and affordable way to transact with cryptocurrency. The application should support multiple cryptocurrencies, have a user-friendly interface and offer transparent transaction tracking and reporting. The application should also provide robust security measures to protect users’ funds and prevent fraud, such as two-factor authentication and secure wallet integration.

Overall, the problem is the lack infrastructure that provides for an easy-to-use method that facilitates crypto wallet to crypto wallet transactions that can drive adoption of cryptocurrencies as a mainstream payment method. The development of such an application would enable businesses and individuals to transact with cryptocurrency more easily and securely, ultimately leading to greater acceptance of cryptocurrencies in the global economy.

**Title of Project:**

Crypto Payments Architecture (CPA)

**Objective & Key Learning:**

This project will help us in learning about how to deal with real time traffic and also help us to learn more about the implementation of the iterative software model’s.

The objective is to come up with a web application that is able to facilitate the user-to-user payments for services or products.

* The Application will be able to use wallet addresses/QR codes to make the transactions
* The Application will provide the user with real time values of their wallets that are linked
* The Application will also provide real time value of the cryptocurrency that is to be used for transaction

**Options available to execute the project / Tech Stack:**

* Rest API
* MERN Stack:
* Mongo DB
* Express JS
* React JS
* Node.js

**Advantage:**

* **Easy and convenient:** QR codes provide a quick and easy way to make cryptocurrency transactions. With a web application that uses QR codes, users can simply scan a code to make a payment, without the need to manually enter wallet addresses or other transaction details.
* **Secure:** QR codes can be more secure than traditional payment methods because they use encrypted data that is difficult to intercept or manipulate.
* **Cost-effective:** Cryptocurrency transactions are typically much cheaper than traditional payment methods, such as credit card transactions or wire transfers. A web application that uses QR codes for cryptocurrency transactions can provide a cost-effective way for users to send and receive funds.
* **Borderless:** Cryptocurrency transactions are borderless, meaning they can be used to make payments across international borders without the need for currency conversions or other complicated financial processes. This application that uses QR codes for cryptocurrency transactions can provide a convenient way for users to send and receive funds from anywhere in the world.
* **Fast:** A web application that uses QR codes for cryptocurrency transactions can provide users with fast and efficient payment processing.
* **Compatible:** QR codes are widely supported by most modern smartphones and can be easily integrated into existing payment systems. This makes it easy for users to adopt.

**Future Scope:**

* **Integration with additional cryptocurrencies:** The web application could integrate with additional cryptocurrencies to provide users with more options for making payments.
* **Integration with other payment methods:** While QR code payments are convenient, some users may prefer to use other payment methods. Hence, we could integrate with other payment methods, such as credit cards or bank transfers, to provide users with more options.
* **Internationalization:** Cryptocurrency payments are borderless. So, the application could incorporate internationalization features, such as support for multiple languages and currencies, to make it easier for users around the world to use this service.
* **Mobile app:** A mobile app could be developed for the web application to provide users with a more convenient and streamlined experience for making cryptocurrency payments. This could include features such as push notifications and mobile wallet integration.
* **Partnership with other businesses:** The web application could partner with other businesses to expand its reach and offer users additional benefits. For example, we could partner with a cryptocurrency exchange to offer users the ability to exchange their cryptocurrency directly within the app.

**References:**

* **Express.js** Documentation for setting up the backend.

<https://expressjs.com/en/5x/api.html>

* **React.js** Documentation for setting up the frontend of the application.

<https://beta.reactjs.org/>

* **MongoDB** Documentation for establishing and managing the database <https://www.mongodb.com/docs/>
* **Node.js** Documentation for using the JavaScript environment outside of the browser for building and testing of the application.

<https://nodejs.org/en/docs/>