RV College of Engineering

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Go, change the world

Title: SECURE LOCKER: RFID ENABLED LOCKER WITH BLOCKCHAIN TRACKING.

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1RV23ET051 | 1RV23ET021 |1RV23AI008 | 1RV23IS105 |

Theme: Manufacturing Process

Introduction

Welcome to the forefront of supply chain innovation. Our project introduces a groundbreaking solution that integrates RFID technology, an e-commerce platform, and blockchain-based delivery systems. Our system revolutionizes asset management, transaction transparency, and delivery efficiency. Join us as we unveil the future of logistics with real-time tracking, decentralized asset management, and enhanced data security. Explore our poster to discover how our RFID board with integrated e-commerce and blockchain delivery systems is reshaping the landscape of commerce.

Problem Definition

Implement a RFID Locker solution with RFID-blocking technology to protect electronic devices and sensitive information from unauthorized RFID scanning or data interception, ensuring user privacy and security.

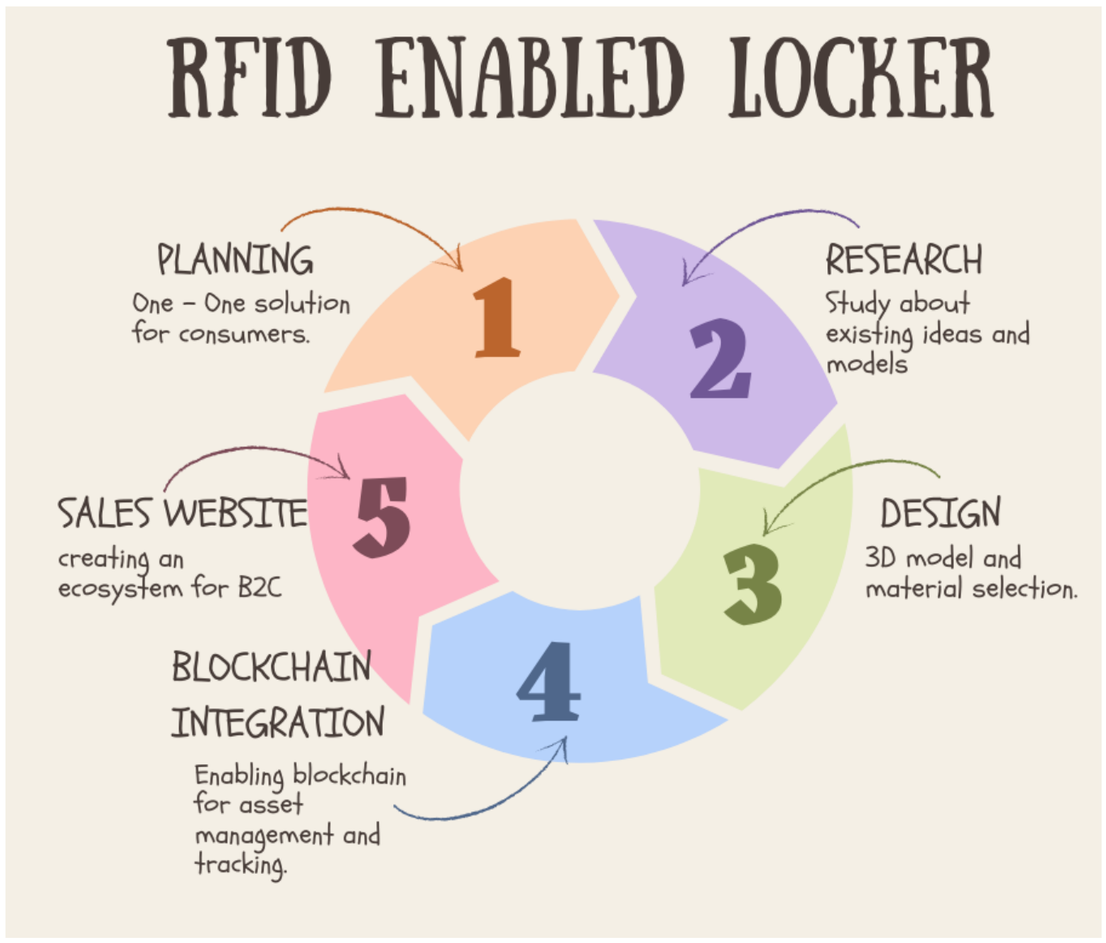
Objective

Our objective is to Integrate RFID technology with blockchain to provide

- Immutable Product Authentication
- Streamlined Asset Management
- Data Integrity and Security
- The RFID integrated cupboard is an application of this technology that can be scaled up for office management, document tracking supply chain and logistics

Methodology

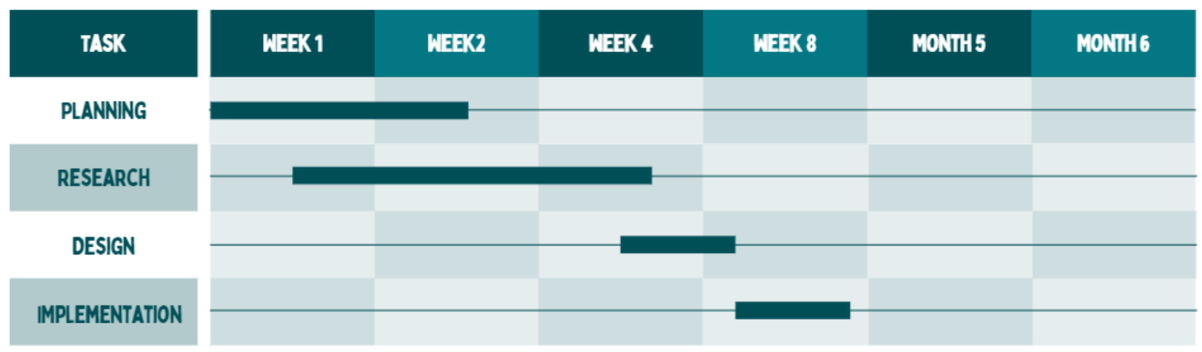
- A thorough research on RFID technology, blockchain integration and web development frameworks.
- Develop a project plan outlining specific milestones, tasks, and deadlines for each aspect of the project, ensuring efficient workflow and progress tracking.
- Utilize a systematic approach for prototype development with RFID reader integration, followed by blockchain implementation, and concluding with web development for the e-commerce platform.
- Employ iterative testing and feedback cycles to refine each component, ensuring seamless integration, functionality, and user experience across all project stages.



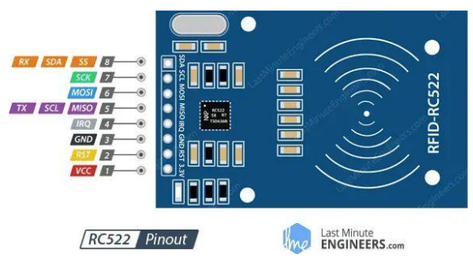
Tools to be used

Software:
Coding environment: VS Code(HTML, JavaScript, CSS), Arduino and required libraries, Canva, TinkerCad, SolidWorks.
Hardware:
Locker making- Jigsaw, Drilling machine, Sanding machine
Sensors and electronics: RFID Reader(MFRC 522), RFID Tags, Arduino UNO, Jumper wires, Buzzer, LED's, Breadboard, Solenoid, Relays, Jumper Wires, DC adapter, Soldering Gun and Jumper Wires.

Timeline



Cost Analysis



RFID Module Rs. I50

Wooden Hardware Rs. 400

Solenoid Rs. 400

+ web server running costs

Expected Product

Expected Outcomes

- By taking on this project, we're aiming to sharpen our skills in three main areas: electrical circuit design, blockchain concepts, and web development.
- We're excited to explore the possibilities of RFID technology and see how it can be applied in various ways. Integrating blockchain into the mix adds an extra layer of security and trust to our project.
- Plus, creating a website to showcase our work not only helps us reach a wider audience but also gives us a chance to practice our web development skills in a real-world setting via an e-commerce application.

References

Knowledge-based RFID enabled Web Service architecture for supply chain management
Authors - David Sundaram , Wei Zhou , Selwyn Piramuthu , Schalk Pienaar
https://www.sciencedirect.com/science/article/abs/pii/S0957417410003416