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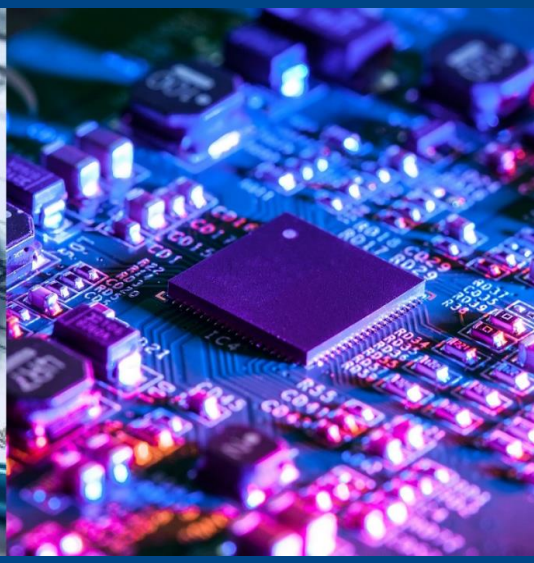

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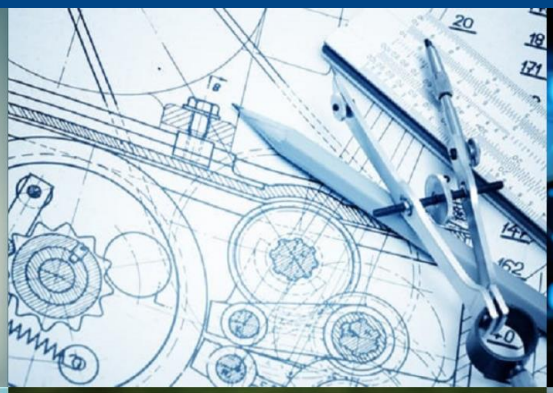

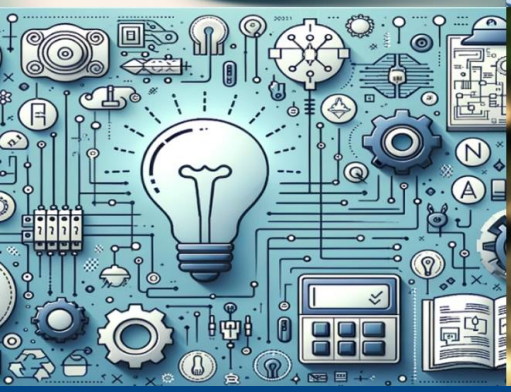

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The Cashless Future: Protecting Privacy and Security in a Digital World

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ABSTRACT: A cashless society is an economic state which handles financial transactions not in the form of traditional mediums of currency, such as cash or coins, but by transferring digital data (usually by electronic means, such as credit cards and mobile data) between participating parties. Balancing individual privacy with data security is vital in the information age, a few courses of action can be combined to produce a lasting and desirable result for users: A new kind of banking service that assigns randomized numbers to credit cards, the use of blockchain to monitor all transactions from individuals, and a campaign to educate and inform key stakeholders about security and privacy risks to provide the necessary tools and background knowledge.

I. INTRODUCTION

Systems exist in a constant state of change, and their components must be updated to increase, or maintain, the ability to effectively accomplish a task and fulfil a purpose. The currency system is a complex one and requires a thorough analysis of its components, in order to operate at an acceptable level. A cashless system is an economic state where all transactions are performed without physical means of currency, such as coins or paper bills. For a cashless system, privacy is a crucial component in need of evaluation. Increasing privacy is and will continue to be a necessary undertaking in a cashless society. A majority of users are unaware of what kind of data is being collected about them and how that data is being used.

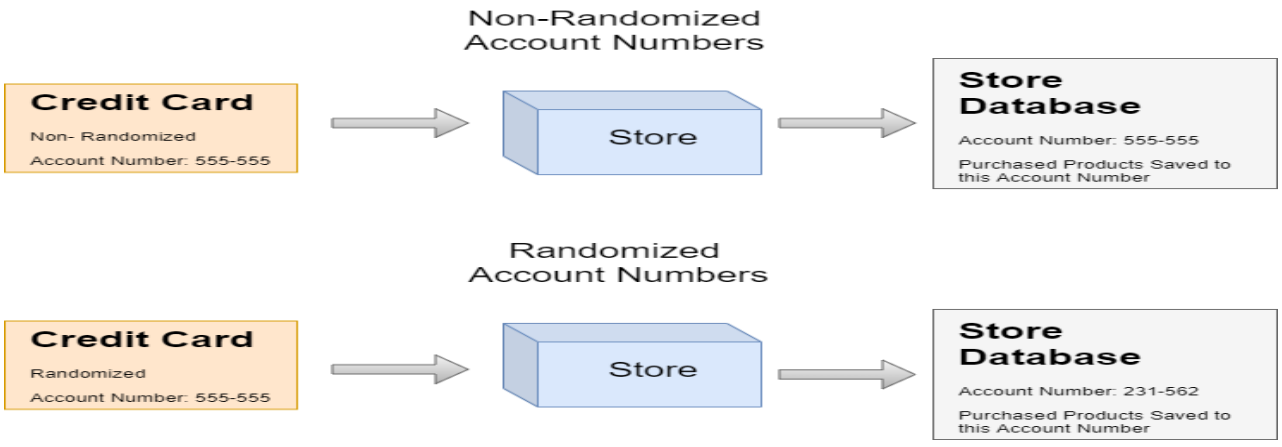

Fig.2.2.1.: System Architecture

II. LITERATURE REVIEW

[4] Meadows, Donella H., and Diana Wright. Thinking in Systems: a Primer. Chelsea Green Publishing, 2015.

This book has been distilled out of the wisdom of thirty years of systems modeling and teaching carried out by dozens of creative people, most of them originally based at or influenced by the MIT System Dynamics group. Foremost among them is Jay Forrester, the founder of the group. My particular teachers (and students who have become my

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teachers) have been, in addition to Jay: Ed Roberts, Jack Pugh, Dennis Meadows, Hartmut Bessel, Barry Richmond, Peter Senge, John Sterman, and Peter Allen, but I have drawn here from the language, ideas, examples, quotes, books, and lore of a large intellectual community. I express my admiration and gratitude to all its members.

III. METHODOLOGY OF PROPOSED SURVEY

SDLC Model

Waterfall Model

The Waterfall Model follows a linear, sequential flow, where progress moves steadily downwards (like a waterfall) through the phases of software development. Each stage in the development cycle begins only after the previous stage is completed. The waterfall approach does not accommodate going back to a previous stage to address changes in requirements. It is the oldest and most well-known method used for software development. The five-stage waterfall model, based on Winston W. Royce's requirements, divides development processes into the following stages:

Requirement Gathering and analysis

All possible requirements of the system to be developed are captured in this phase and documented in a requirement specification. Requirement gathering and analysis are essential steps in the software development process that ensure the final product meets the needs of users and stakeholders. This phase involves identifying, documenting, and prioritizing requirements through techniques such as interviews, surveys, and workshops.

System Design

The requirement specifications from first phase are studied in this phase and system design is prepared. System Design helps in specifying hardware and system requirements and helps in defining overall system architecture. System design is a critical phase in software development that establishes a blueprint for building a system, ensuring it aligns with user requirements and business goals. It involves defining the architecture, components, interfaces, and data flows, which facilitates scalability, maintainability, and performance optimization.

Implementation

With inputs from system design, it is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested it functionality which is referred to as Unit Testing. Implementation is the phase in software development where the designed system is built and made operational. This involves coding, testing, and integrating components to create a functional software product. Effective implementation ensures that the system meets specified requirements and performs as intended.

Integration and Testing

All the units developed in the implementation phase are integrated into a system after testing of each unit. Post integration the entire system is tested for any faults and failures.

Deployment of system

Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.

Maintenance

There are some issues which come up in the client environment. To fix those issues patches are released. Also to enhance the product some better versions are released.

IV. CONCLUSION AND FUTURE WORK

A cashless society poses risks for its members because data and metadata about their transactions are being collected and used. The members of said cashless society will have to figure out a way to protect their data in order to increase their privacy. Our group has found the idea of a cashless society to involve many systemic complexities. Within the complex system, opportunities arise to implement solutions to privacy and security problems. The various actors in said system have different desires and will respond in unique ways to changes made. Sometimes the best solution to a problem is the culmination of multiple approaches.

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In the future, we intend to propose mutual authentication between gateway devices and IoT devices. In addition, we aim to propose DDoS attack detection in the cloud computing, security Through the integration of advanced encryption techniques and multi-factor authentication in Protocols. Additionally, advancement may include the implementation of machine learning algorithms optimize offloading decisions based on real-time data analysis, thereby enhancing resources utilization and system efficiency. enhancing the overall user experience and reliability Of mobile cloud applications.

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