**Credit Coin: A Privacy-Preserving Block chain-Based Incentive Announcement Network for Communications of Smart Vehicles**

**Alternative Title: Block-Chain Based Incentive Announcement in VANET Using Credit Coin**

**Aim:**

 The main aim of this project is to develop an effective announcement network called Credit Coin, a new privacy-preserving incentive announcement network based on Block chain.

**Synopsis:**

Vehicular announcement network in VANETs (Vehicular ad hoc networks) have become one of the most promising vehicular communication applications, as it leads to a much safer vehicle-driving experience. Block chain-based networks are promising in recording credit data with the good properties of tamper resistance and decentralization, which is useful in VANET’s. We propose a vehicular announcement protocol Echo-Announcement in Credit Coin. It achieves efficiency and privacy-preserving for the practical usage in forwarding announcements. We design an incentive mechanism based on Block chain in Credit Coin. Users manage reputation points while they earn or spend coins as incentives. Meanwhile, Credit Coin still preserves privacy and achieves anonymity. Moreover, based on Block chain, Credit Coin prevents many security attacks and achieves conditional privacy because Trace manager will trace malicious nodes when an unexpected event occurs.

**Existing System:**

In Existing Systems users usually lack enthusiasm to forward any messages in VANETs if there is a risk that their privacy will be breached. In addition, users do not benefit from forwarding announcements, which also makes them lack motivation to respond to messages. Ideally, all messages must be forwarded anonymously in VANETs since they usually contain sensitive information of users, such as vehicle numbers, driving preferences and customer identities. However, forwarding messages anonymously does not assure the reliability of the messages, and also suffer from heavy workload.

**Proposed System:**

 In proposed system we propose a new technique called Credit Coin. It achieves efficiency and privacy-preserving for the practical usage in forwarding announcements. We design an incentive mechanism based on Block chain in Credit Coin. Users manage reputation points while they earn or spend coins as incentives. Meanwhile, Credit Coin still preserves privacy and achieves anonymity. Moreover, based on Block chain, Credit Coin prevents many security attacks and achieves conditional privacy because Trace manager will trace malicious nodes when an unexpected event occurs.

**Modules:**

* **Network Formation**
* **Neighbor Calculation**
* **Data Communication**
* **Block Chain**

**Network Formation:**

 In this module, we create a network formation. A network formation consists of nodes. Each node has distance and range based on which coverage area is formed. Based on coverage area nodes communicate with each other and neighbor nodes are formed. If destination node is out of coverage area of source node, message transmitted to destination via neighbors.

**Neighbor Calculation:**

 After Network is formed based on vehicle location and road side unit location neighbor is calculated. In VANET environment vehicle to vehicle or vehicle to road side unit communication takes place based on their neighbors which have intersecting range. As vehicles are dynamic neighbors are also dynamic and neighbors keep changing once vehicle starts to move from one location to another.

**Data Communication:**

After Network is formed and neighbors are calculated dynamically data communication takes place between vehicle and road side unit. A vehicle in the network request another vehicle in the network about traffic status via road side unit as they were out of range.

**Block Chain:**

The users request and messages were securely stored in Block chain implementation. When a credit coin were issued or received, it is considered a block and added to the block chain. The block chain uses the miners to append the transaction details as a block to the block chain.

**Software Requirements:**

* Operating System : Windows 7 and above (64-bit).
* Python : 3.6
* Java : Jdk 1.8

**Hardware Requirement:**

* Hard Disk : 500GB and Above
* RAM : 4GB and Above
* Processor : I3 and Above

**Architecture:**

 Vehicle 1

 Vanet

 Environment

 Vehicles In

 Traffic Jam

Vehicle 2

Vehicle 3

Updates Traffic

Info to RSU

Credit Coin

Incentive Mechanism

Vehicle 4

Request Traffic

Info from RSU

Credit Coin

Incentive Mechanism