**A PRIVACY PRESERVING COMMUNICATION BETWEEN SMART VEHICLE**

**ISSUE:**

* In a privacy preserving communication between smart vehicles, people lag to share an information because of selfish attitude.
* There is a need for efficient mechanism to avoid this issue.

**Solution:**

**An incentive mechanism** is presented to avoid selfish behavior of vehicles.

**Why Incentive Mechanism?**

* It encourages people to share an information to get rewards
* It increases the participation rate
* Avoids selfish behavior
* Provided to check integrity of the news

**A Blockchain-based Incentive Provisioning Scheme for Traffic Event Validation and Information Storage in VANETs**

**INCENTIVE MECHANISM:**

* Provided by the initiator after verification of the repliers’ signatures.
* Initiator is a vehicle who initializes the event.
* Incentives are given to those vehicles who agree with an initializer.

**WORK FLOW:**

* Initiator initiates an event information
* Invites repliers to sign an event information
* Repliers request certificate of initiator from Certificate Authority
* After verification repliers sign an information
* Initiator gets response
* Then sends an incentive to repliers
* Incentive list are sent to RSU, which further stores it in the blockchain

**ALGORITHM:**

function giveIncentives (initiatorAddress, responderAddress, amount)

**Get values:** initiatorBalance, responderBalance

initiatorBalance = initiatorBalance-amount

responderBalance = responderBalance+amount

emit initiatorAddress, responderAddress, amount

end

* It defines the mechanism of incentivization of the witness that confirm the event information generated by the initiator
* RSU adds incentives to the responding vehicles’ account and deducts the same amount from event initiator vehicles’ account.
* “emit” is used at the end of the function to save data in blockchain

**PARTICIPATION RATE:**

Incentive mechanism increases participation rate

Participation rate =( Nini / Ntot )\* 100

**VALIDITY:**

Incentives are exchanged only after the validation of the event information.

**ARCHITECTURE:**

 **Information Repliers**

Signs

Invites

**Initiator**

Sends



Sends to

Initializes

**Incentives**

**DRAWBACKS:**

In this paper, they didn’t say from where the initiator is getting an incentives.

**Credit Coin: A Privacy-Preserving Blockchain based Incentive Announcement Network for Communications of Smart Vehicles**

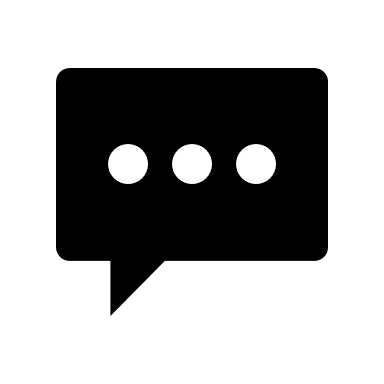
**INCENTIVE MECHANISM:**

* Credit Coin motivates users with incentives to share traffic information
* Users manage reputation points while they earn or spend coins as incentives
* Reputation points are maintained because if the same message is forwarded by many witness then there will be heavy workload.
* The users are encouraged to forward and receive packets with incentives to increase their coins
* It makes the Credit Coin network more active

**PROPOSITION RULES:**

* When Trusted Authority broadcasts an event information, if a witness replies to that information, Witness will get several coins. In order to avoid the abuse of the replies, the frequency of the user’s daily reply is limited, which is set up to 3 times.
* Initiator forwards aggregated packets successfully and eager to get a reward as an incentive. After the approval Initiator gets some number of coins as incentives
* Initiator needs to spend some money before and then get rewards according to previous proposition.
* The amount of reward is usually higher than the cost of sending RQP.
* If the request sent by Initiator is not honest, only few people only respond to him/her.
* This feature reduces the coins of initiator.
* Malicious users cannot continue to send information.
* The unspent coins will be halved in a certain period.

**ARCHITECTURE:**

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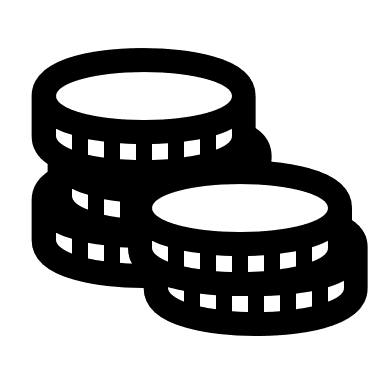
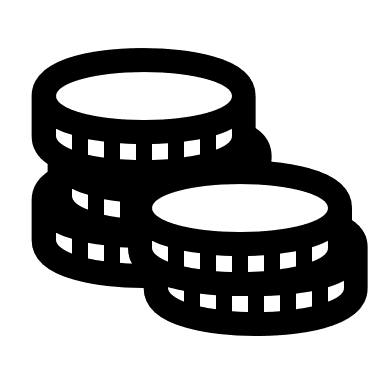
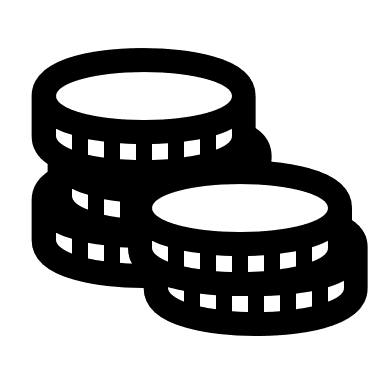
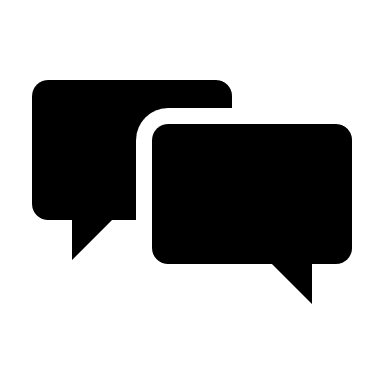
Verified Packet

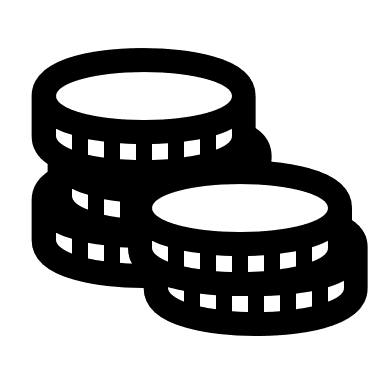
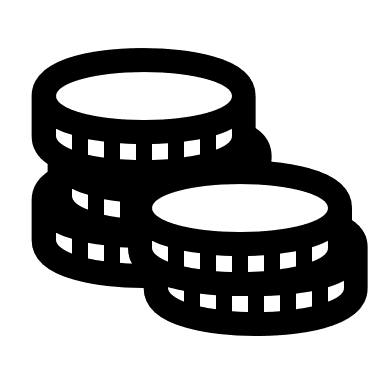
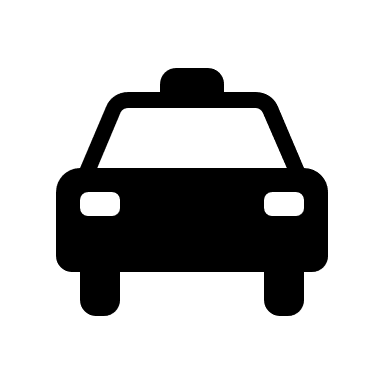
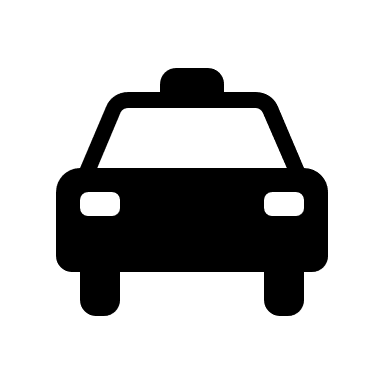
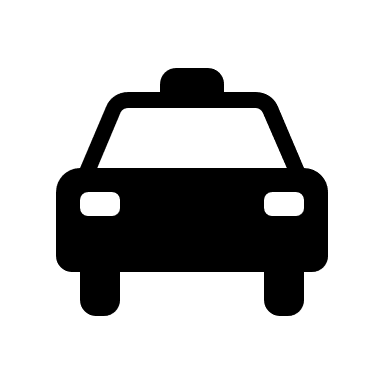
Trust

Authority

Rewards for initiator

Request Packet

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Incentives initiated by initiator

Repliers

Initiator

**Accident Alert System Application using a Privacy Preserving**

**Block Chain based Incentive Mechanism**

* Incentive mechanism is introduced to encourage the users to endorse an alert message without revealing the user’s identity
* The user who is receiving an accident alert message from the initiator may authenticate a message by receiving some incentives from the initiator.
* After the alert message containing the accident location received by the emergency services, they provide some incentives to the initiator.

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Emergency Service

**e   **

Repliers

Initiator

Hey witness, accident occurred there

Okay let’s sign