

**Credit Coin: A Privacy Preserving Blockchain Based Incentives  
Announcement Network For Communication Of Smart Vehicles**

A report submitted in partial fulfillment of the requirements for the award of a degree of

**Bachelor Of Technology  
in  
Computer Science And Engineering**

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(2023-2024)**

## DECLARATION

We hereby declare that the report entitled “**Credit Coin : A Privacy Preserving Blockchain Based Incentives Announcement Network For Communication Of Smart Vehicles**” submitted for the award of the degree of **Bachelor of Technology (B. Tech)** in Computer Science and Engineering is a record of an original work done by us and the report has not formed the basis for the award of any degree, diploma, associateship or fellowship of similar other titles. It has not been submitted to any other university for the award of any other degree or diploma.

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING****CERTIFICATE**

This is to certify that the report entitled “**Credit Coin : A Privacy Preserving Blockchain Based Incentives Announcement Network For Communication Of Smart Vehicles**” is being submitted by **P. Jayanth Ganesh** bearing the Hall Ticket number **21EG505808**, **D. Deepak Nayak** bearing the Hall Ticket number **21EG505813**, **L. Praneeth Kumar** bearing the Hall Ticket number **21EG505844** in partial fulfillment for the award of the Bachelor of Technology in Computer Science and Engineering to Anurag University is a record of bonafide work carried out by them under my guidance and supervision for the academic year 2023-2024.

The results embodied in this report have not been submitted to any other university or institute for the award of any other degree or diploma.

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## ABSTRACT

The vehicular announcement network is one of the most promising utilities in the communications of smart vehicles and in the smart transportation systems. In general, there are two major issues in building an effective vehicular announcement network. First, it is difficult to forward reliable announcements without revealing users' identities. Second, users usually lack the motivation to forward announcements. In this paper, we endeavor to resolve these two issues through proposing an effective announcement network called Credit Coin, a novel privacy-preserving incentive announcement network based on Blockchain via an efficient anonymous vehicular announcement aggregation protocol. On the one hand, Credit Coin allows nondeterministic different signers (i.e., users) to generate the signatures and to send announcements anonymously in the non fully trusted environment. On the other hand, with Blockchain, Credit Coin motivates users with incentives to share traffic information. In addition, transactions and account information in Credit Coin are tamper-resistant. Credit Coin also achieves conditional privacy since Trace manager in Credit Coin traces malicious users' identities in anonymous announcements with related transactions. Credit Coin thus is able to motivate users to forward announcements anonymously and reliably. Extensive experimental results show that Credit Coin is efficient and practical in simulations of smart transportation.

**Keywords:** Credit Coin, blockchain, vehicular communication, incentive mechanism, threshold authentication, privacy.

# CONTENTS

<b>TITLE</b>	<b>PAGENO</b>
<b>1.INTRODUCTION</b>	<b>1</b>
1.1.    MOTIVATION	1
1.2.    PROBLEM DEFINITION	2
1.3.    OBJECTIVE OF THE PROJECT	3
<b>2.LITERATURE SURVEY</b>	<b>4</b>
<b>3.ANALYSIS</b>	<b>6</b>
3.1.EXISTING SYSTEM	6
3.2.PROPOSED SYSTEM	6
3.3.SYSTEM REQUIREMENT SPECIFICATION	6
3.3.1 PURPOSE	7
3.3.2 SCOPE	7
3.3.3OVERALL DESCRIPTION	8
<b>4.DESIGN</b>	<b>9</b>
4.1.SYSTEM ARCHITECTURE	9
4.2.DATAFLOW DIAGRAM	9
4.3.UML DIAGRAM	11
4.4.USE CASE DIAGRAM	11
4.5.CLASS DIAGRAM	13
4.6.ACTIVITY DIAGRAM	13
4.7.SEQUENCE DIAGRAM	14
4.8.COLLABORATION DIAGRAM	15
4.9.COMPONENT DIAGRAM	16
4.10. DEPLOYMENT DIAGRAM	17
<b>5.IMPLEMENTATION</b>	<b>18</b>
5.1.MODULES	18
5.2.MODULE DESCRIPTION	22
5.3.TECHNOLOGIES USED	24
5.4.SAMPLECODE	32
<b>6.TEST CASES</b>	<b>73</b>
<b>7.SCREENSHOTS</b>	<b>74</b>
<b>8.CONCLUSION</b>	<b>80</b>
<b>9.FUTURE ENHANCEMENT</b>	<b>81</b>
<b>10. BIBLIOGRAPHY</b>	<b>82</b>

## LIST OF FIGURES

Figure No	Figure Name	Page No
Fig.4.4	Use Case Diagram	11
Fig.4.5	Class Diagram	13
Fig.4.6	Activity Diagram	13
Fig.4.7	Sequence Diagram	14
Fig.4.8	Collaboration Diagram	15
Fig.4.9	Component Diagram	16
Fig.4.10	Deployment Diagram	17
Fig.7.1	Initiator Vehicle	74
Fig.7.1.1	Initiator Vehicle Number	75
Fig.7.2	Sending Message	75
Fig.7.3	Creation Of Vehicular Network	76
Fig.7.4	Key Generation	76
Fig.7.5	Credit Coin Simulation	77
Fig.7.6	Trace Manager	78
Fig.7.7	Computation Graph	79