

# **SERVICE DELIVERY BY COMMERCIAL BANKS**

**A STUDY OF RURAL CUSTOMERS**

**E. Hari Prasad**





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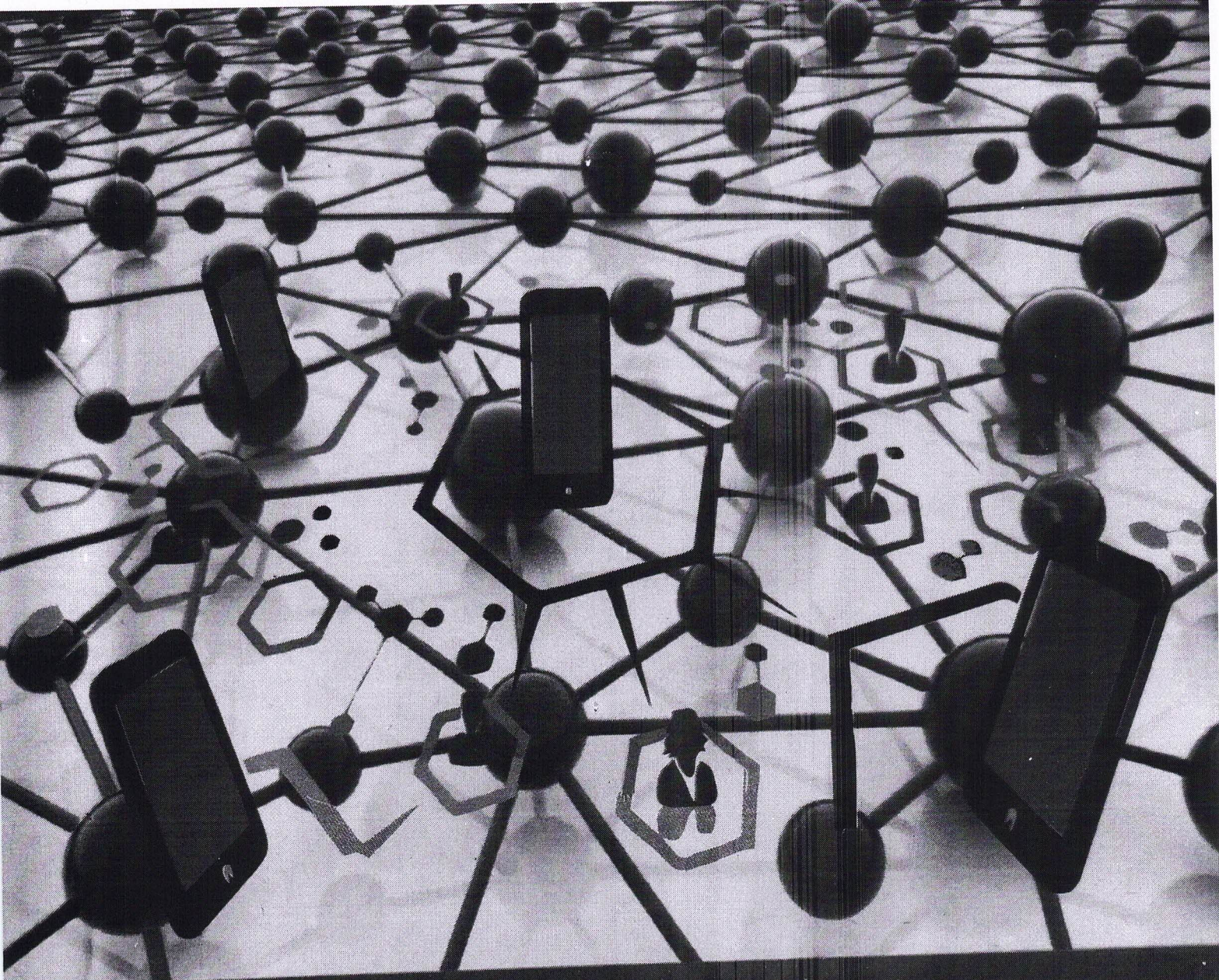




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# MOBILITY MODELS :

## COMPARISON ENVIRONMENT FOR ROUTING PROTOCOLS

*V. K. S.*



# **Mobility Models: Comparison Environment for Routing Protocols**

**Dr. Gulab Singh**

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# Dr. Gulab Singh

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## **MHD free convection heat transfer couette flow in rotating system**

G. Jithender Reddy, P. Manideep, and R. Srinivasa Raju

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# MHD Free Convection Heat Transfer Couette Flow in Rotating System

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**Abstract.** The unsteady hydromagnetic free convection heat transfer couette flow, viscous incompressible electrically conducting fluid in a rotating system has been considered. A Finite Element Method (FEM) employed to find the numerical solutions of the dimensionless governing coupled PDEs with suitable boundary conditions. The primary, secondary velocity and temperature have been obtained. These are shown graphical form.

## INTRODUCTION

The Couette flow in fluid dynamics, refers to the laminar flow of a viscous fluid in the space between the two parallel plates, one of which moves relative to the other. This flow is driven by virtue of viscous drag force acting on fluid and the applied pressure gradient is parallel to the plates. Such flow was named in honor of Maurice Marie Alfred Couette, a professor of Physics at the French University of Angers in the late 19th century. Shear – driven fluid motion is explained in undergraduate physics and engineering courses using Couette flow. Couette motion is applied application viz. magnetohydrodynamics power generators and pumps, petroleum industry, polymer technology, purification of crude oil and fluid droplets sprays. This flow analyzed Kearsley *et al.*[1] and Singh *et al.*[2]. S. Das *et al.*[3] studied the effect of the magnetic field on unsteady MHD free convection Couette flow between the infinite horizontal parallel plates with the presence of a rotating system by Laplace transform Technique. The finite element method (FEM) is an efficient computer based numerical method to solve various engineering and real world problems such as, Solid mechanics, heat transfer with fluids etc. The complexity of the FEM, simplicity, accuracy and computability which will make it a widely used tool in modeling and design process [4]. Code or programming of Finite element Method is less complicated than many of the spreadsheet and word processing packages found on modern microcomputers. The primary feature of FEM ([5]) is its ability to describe the geometry of the problem being analyzed with great flexibility. Srinivasa Raju *et al.* [6] found both analytical and numerical solutions of unsteady magnetohydrodynamic free convective flow past an exponentially moving vertical plate with heat absorption and chemical reaction. Srinivasa Raju *et al.* [7] studied thermal diffusion and diffusion thermo influence on an unsteady heat and mass transfer magnetohydrodynamic free convection Couette flow using Finite Element Method. Jithender Reddy *et al.* [8] studied MHD free convection fluid flow on a vertical plate with the effect of thermal diffusion and diffusion thermo through finite element technique.

From the above investigation, the unsteady hydromagnetic free convection heat transfer Couette flow, viscous incompressible electrically conducting fluid in a rotating system has been considered. We found the numerical solutions of the dimensionless governing coupled PDEs with suitable boundary conditions for distribution of primary velocity, secondary velocity and temperature through Finite Element Method.



# Sybil Attack Detection Technique Using Session Key Certificate in Vehicular Ad Hoc Networks

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**Abstract**—The basic need of Mobility is much needed for social and economical development. Intelligent Transportation Systems (ITSs) are predicated to play a considerable role in future and provide safer and efficient transportation. The Adhoc Network formed is an VANET, an emerging standard, for communication between mobile vehicles and mobile/fixed devices. The technologies like Wi-Fi, Bluetooth components are integrated with other mobile connectivity protocols for feasible data transfer between road side equipment and automobile traffic. The most important feature of VANET is Security. Without security, VANET is exposed to several threats, among which one of the threat is Sybil attack. One of the robust secure mechanism adopted is a cryptographic digital signature used to establish the faith between the various participating entities.

**Keywords**— Sybil Attack, RSU, SADT, Session Key Certificate.

## I INTRODUCTION

Vehicular Ad Hoc Network (VANET) is a special categorized wireless ad hoc networks. Its functionality is to establish the communication between mobile vehicles which has the features of high node mobility and faster topological changes and the moving vehicle environment. Hence the routing links and routing paths are inherently unstable. Due to rapid growth of vehicles and due to potential threats, accidents frequency is reported high, as the location of the vehicle changes constantly. This means a constant demand arises for data on the current location and specifically information on the traffic surrounded, routes to be followed and many more. Wireless technology is developed to implement technology in mobile vehicles to reduce risk factors, by exchanging the related information/data to each other.

## II VANET ARCHITECTURE

In vehicular networks, the mobile vehicles are intended to communicate with each other through inter vehicle communications [1] Systems. VANET architecture consists of two types of communicational devices. The first one is On-Board Units (OBU's), which is installed in the vehicles. An OBU fitted vehicle can communicate with other OBU vehicle in its range of communicable area via wireless connections.

The mobile network module is compressed of a central processing unit for all on-board sensors warning devices. Each OBU is equipped with Global Positioning System (GPS) receiver and an Event Data Recorder (EDR). The GPS receiver provides geographical location information, Velocity, direction of destination and acceleration of vehicles at regular or specified time intervals, as desired by the user. The second part of VANET architecture is the Road Side Units (RSU). RSUs are installed on roadside with fixed locations or signal accessing distance and mounted at centralized locations like road- junctions, parking areas or fuel stations. The main functionality of an RSU is, to act as wireless Access Point (AP), which serves wireless access to users within its coverage area. VANETs enables both Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) Communications.

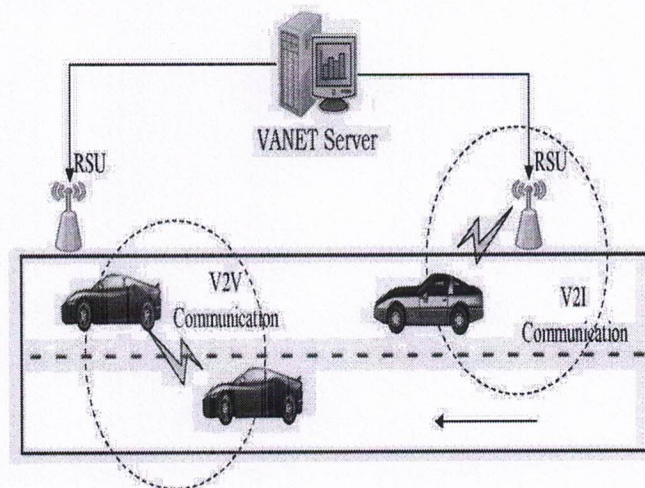


Fig.1. A simple VANET Architecture

## III SECURITY SPECIFICATIONS

In general, a security system protects against the attacks and ensures the critical information [2], [3], [4]. Most of the security methods adopted results in a significant overhead, thereby reducing the efficiency of the system in terms of latency and bandwidth. A security system used for VANET



# Unsteady MHD free convection flow of casson fluid over an inclined vertical plate embedded in a porous media

P. Manideep, R. Srinivasa Raju, T. Siva Nageswar Rao, and G. Jithender Reddy

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# Unsteady MHD Free Convection Flow of Casson Fluid over an Inclined Vertical Plate Embedded in a Porous Media

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**Abstract.** This paper deals, an unsteady magnetohydrodynamic heat transfer natural convection flow of non-Newtonian Casson fluid over an inclined vertical plate embedded in a porous media with the presence of boundary conditions such as oscillating velocity, constant wall temperature. The governing dimensionless boundary layer partial differential equations are reduced to simultaneous algebraic linear equation for velocity, temperature of Casson fluid through finite element method. Those equations are solved by Thomas algorithm after imposing the boundary conditions through MATLAB for analyzing the behavior of Casson fluid velocity and temperature with various physical parameters. Also analyzed the local skin-friction and rate of heat transfer. Compared the present results with earlier reported studies, the results are comprehensively authenticated and robust FEM.

## INTRODUCTION

The study of magnetohydrodynamic free convection flow for non-Newtonian fluid past over a flat plate or surface has attracted the interest of many researchers in view of different non-Newtonian fluids such as power law [1], Jeffrey [2], Maxwell [3] models etc. there is an another non-Newtonian fluid model, it is known as Casson fluid, this model was introduced by Casson [4] for analyze the flow behavior of pigment oil and its suspensions of the printing ink type. Few authors [5-8] have studied on a vertical plate. Recently Reddy et al.[9] have studied an unsteady MHD natural free convection fluid flow on an oscillating vertical plate embedded in a porous media with the effect of some physical parameters.

In view of the above literature, the authors are not explored Casson fluid flow over an inclined vertical plate. So that, in this paper, we have consider an unsteady MHD heat transfer flow of Casson fluid over an inclined oscillating vertical plate. The governing equations transformed to non-dimensional partial differential equations by substituting emerging dimensionless parameters. The dimensionless equations reduced to system of linear equations by Finite Element Method, that equations are solved by Thomas algorithm after imposing the boundary conditions to analyze the behavior of velocity and temperature of the Casson fluid over an inclined oscillating plate with the variation of emerging parameters. Also analyze the skin friction and rate of heat transfer near to the inclined plate. Compare the present results with existing results of Asma Khalid [5]. The results are comprehensively authenticated and robust FEM.