ADIKAVI NANNAYA UNIVERSITY:: RAJAMAHENDRAVARAM
UNIVERSITY COLLEGE OF ENGINEERING
DEPARTMENT ELECTRONICS AND COMMUNICATIN ENGINEERING
A Report on One Day Seminar On
Artificial Intelligence in Vehicle to Everything (V2X) Communication Technology

Preamble: A one day Seminar on Artificial Intelligence in Vehicle to Everything (V2X) Communication Technologyconducted on 25th August 2022 10am Venue at Seminar Hall, Administrative block, Adikavi Nannaya University Rajahmundry, East Godavari, AP. Chief Patron Prof.M Jagannadha Rao, Hon'ble Vice Chancellor AKNU, Prof.T Ashok, Registrar AKNU,Prof S. Teki, OSD AKNU,Co-Patron Dr V Persis, Principal, UCE AKNU, Convener Mr B. Sudha Kiran, Course Coordinator of Dept. Of ECE. Key Speaker of the Seminar is Dr Kiran Kumar Gurrala, Associate Professor&HODDept of ECE National Institute of Technology, Andhra Pradesh.

Key Speaker Profile: Dr Kiran Kumar Gurrala, Associate Prof&HOD Dept of ECE National Institute of Technology, Andhra Pradesh. He completed his B.Tech in Electronics and Communication Engineering from JNTUH. M.Tech with a Specialization in Telematics and Signal Processing from National Institute of Technology Rourkela. He did his Ph.D.in Wireless Communication from National Institute of Technology Rourkela. He worked in Anurag Engineering College kodad, worked as Assistant Professor for 2 years.

Now, he is working as head of the department,

department of ECE,National Institute of Technology Tadepalligudam, Andhra Pradesh. His Research Interests are wireless Communication (5G), Physical Layer Security and Visible Light Communication. He attends 14 IEEE International Conferences and presented a paper. He Published more than 8 Articles in various National and International Journals include fine SCI journals.

ADIKAVI NANNAYA UNIVERSITY
ఆదికవి నన్నయ విశ్వవిద్యాలయం
RAJAMAHENDRAVARAM, ANDHRA PRADESH INDIA - 533296
ISO 9001:2015 Certified

UNIVERSITY COLLEGE OF ENGINEERING
APPROVED BY AICTE, NEWDELHI
DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEREING

ONE DAY SEMINAR
ON
ARTIFICIAL INTELLENGENCE IN VEHICLE TO EVERYTHING (V2X) COMMUNICATION TECHNOLOGY

PROGRAM SCHEDULE
Dated: 25-08-2022, Venue: Seminar Hall, A Block

Session 1

1. 10.00 -10.10 AM: **Invitation & Remarks** : **Mr.B. Sudhakiran, CC- Dept. ECE**

2. 10.10 - 10.20 AM: **Greetings** : **Dr.V.Persis, Principal, UCE**

3. 10.20 -10.25 AM : **Introduction of the Chief Guest** : **Mr. S. Lakshmi Narayana, IV B.Tech ECE**

4. 10.25 -10.40 AM: **Chief Guest Message** : **Hon'ble Vice Chancellor, Prof M. Jagannadha Rao**

5. 10.40 -10.45 AM: **Introduction of the Resource Person** - **Miss. N. Hema Latha, III B.Tech ECE**

6. 10.45 -11.00 AM: **Felicitation to Chief Guest and Resource Person**

7. 11.00 -12.30 PM **Lecture 1** : **Dr. Kiran Kumar Gurrala**
   HOD, Department of ECE ,NITAP,

8. 12.30-2.00 PM: **Lunch break**

Session 2

9. 2.00-3.30 PM **Lecture 2** : **Dr. Kiran Kumar Gurrala**
   HOD, Department of ECE ,NITAP

1. 3.30-3.35 PM **Tea break**

Session 3

10. 3.35 - 4.50 PM **Lecture 3** : **Dr. Kiran Kumar Gurrala**
    HOD, Department of ECE ,NITAP

1. 4.50 - 5.00 PM **Vote of Thanks** : **Mr. D. Teja Veer Sai Kumar, III B.Tech ECE**

Inaugural Function:

Description about the Program: Dr G. Kiran Kumar explain detail about the Artificial Intelligence in Vehicle to Everything (V2X) Communication Technology.

The recent wireless networks use advanced communication technologies to connect numerous elements such as vehicles, pedestrians, infrastructure, highways, etc. The concept of V2X (vehicle-to-everything) communication is introduced as a result of advanced communication technologies. Vehicle-to-vehicle (V2V), vehicle-to-infrastructure (V2I), vehicle-to-pedestrian (V2P), and vehicle-to-cloud (V2C) communications are all possible through V2X communications. In a nutshell, V2X provides a platform for intelligent transportation. Road safety (traffic jam/incident reporting, collision warning, and collision avoidance), cooperative autonomous driving (traffic information sharing), entertainment services, and many other use cases are the applications of V2X communications in the context of Artificial intelligent (AI). Automobile firms are continuously developing more intelligent vehicles aiming to reliable life of passengers. With various unique technologies and AI research and development, travel is becoming more efficient and reliable.
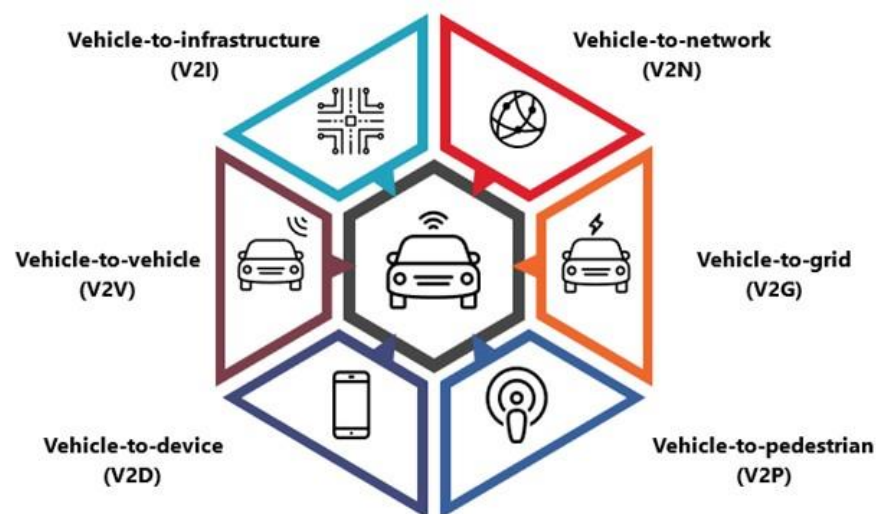

Potential topics include but are not limited to the following:

- V2V communications-based real-time traffic monitoring for congestion detection and avoidance
- hybrid V2V and V2I based scheme for traffic management
- V2X based smart parking
- AI algorithm for ITS
- V2I communications-based real-time traffic monitoring for congestion detection and avoidance

- Advanced cellular based (5G or 6G) sensing technologies for traffic monitoring and analysis
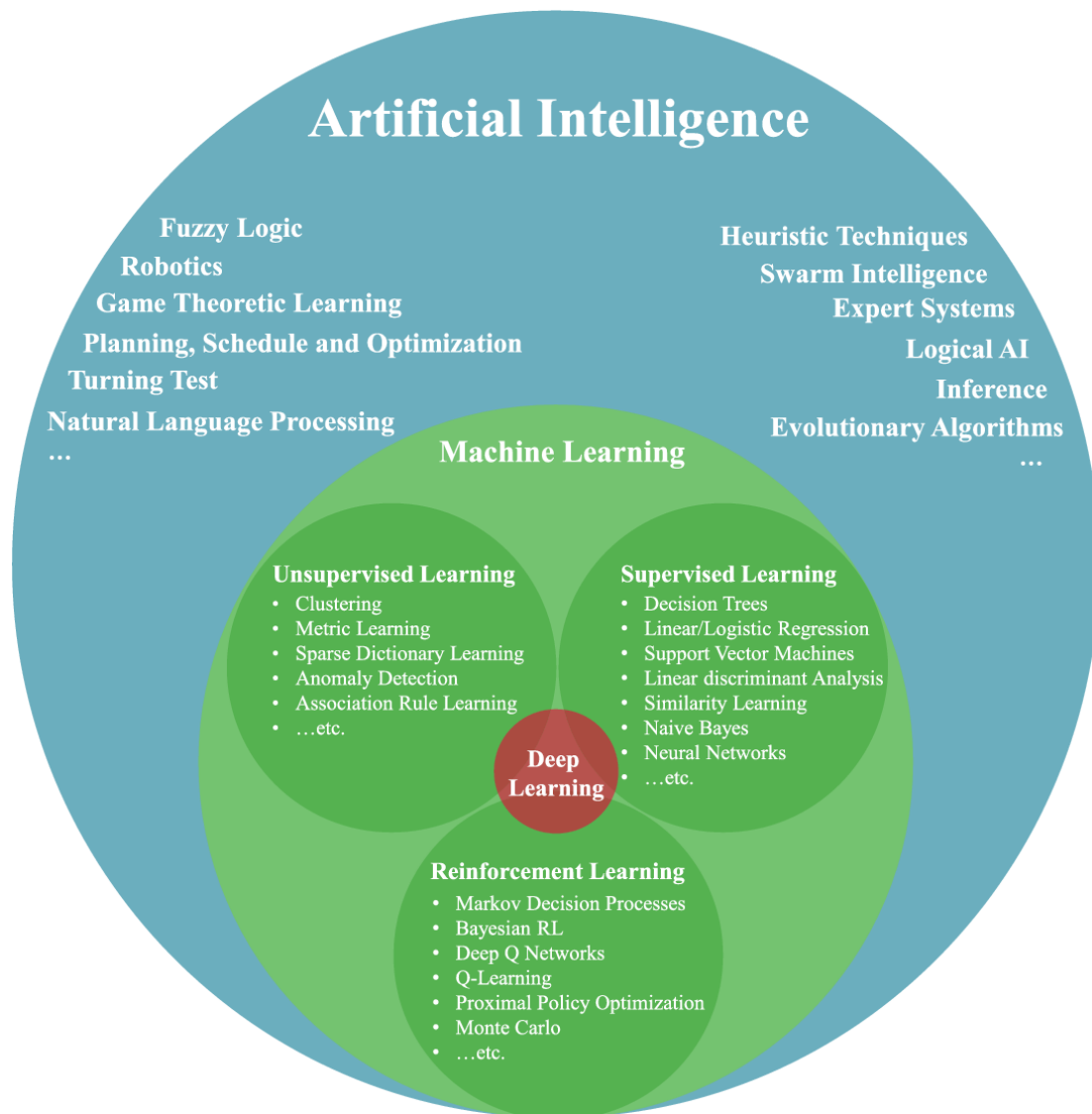
The cusp of a new era of connected autonomous vehicles with unprecedented user experiences, tremendously improved road safety and air quality, highly diverse transportation environments and use cases, and a plethora of advanced applications. Realizing this grand vision requires a significantly enhanced vehicle-to-everything (V2X) communication network that should be extremely intelligent and capable of concurrently supporting hyperfast, ultrareliable, and
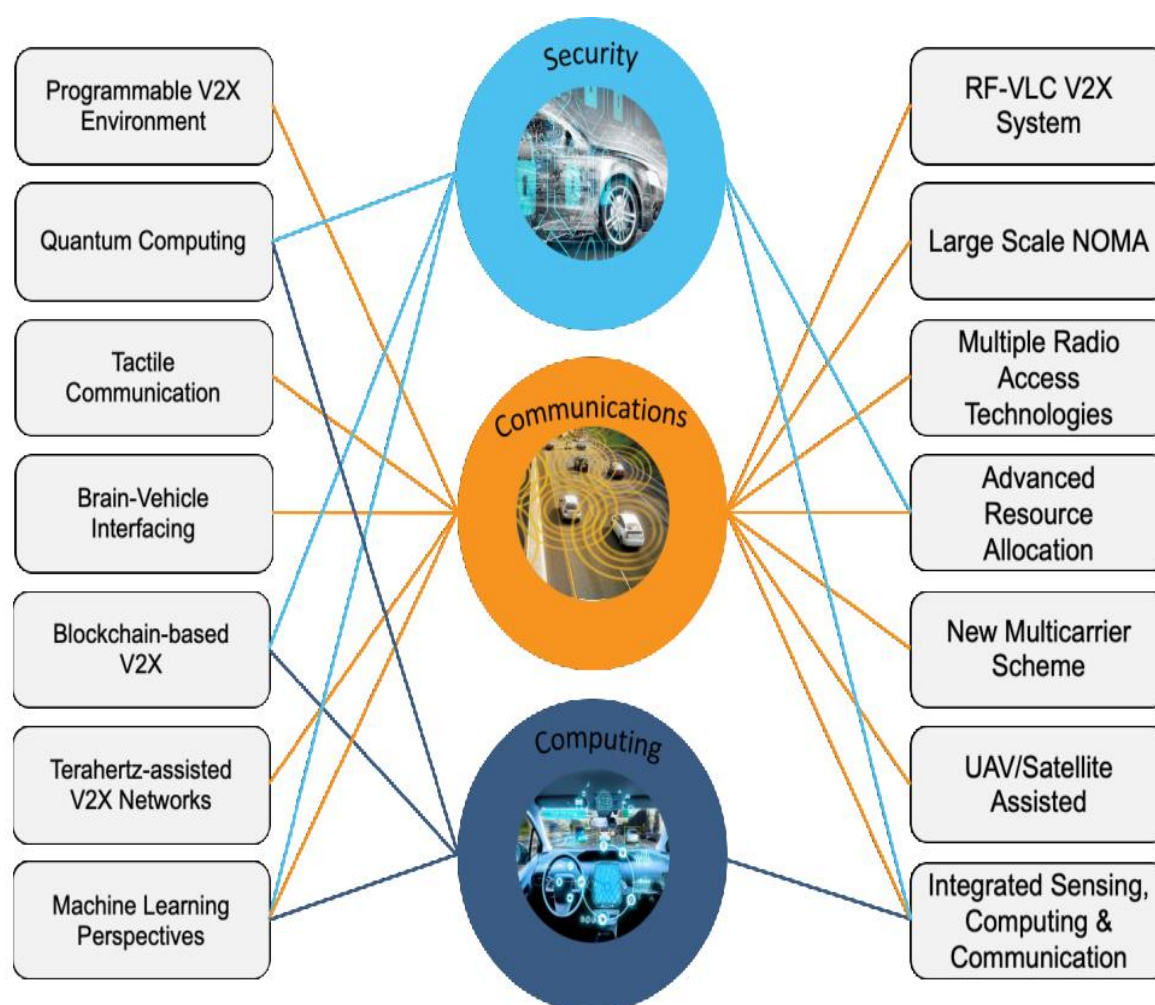
low-latency massive information exchange. It is anticipated that the sixth-generation (6G) communication systems will fulfill these requirements of the next-generation V2X. In this article, we outline a series of key enabling technologies from a range of domains, such as new materials, algorithms, and system architectures. Aiming for truly intelligent transportation systems, we envision that machine learning (ML) will play an instrumental role in advanced vehicular communication and networking. To this end, we provide an overview of the recent advances of ML in 6G vehicular networks. To stimulate future

research in this area, we discuss the strength, open challenges, maturity, and enhancing areas of these technologies.

The advancement in communications, intelligent transportation systems, and computational systems has opened up new opportunities for intelligent traffic safety, comfort, and efficiency solutions. Artificial intelligence (AI) has been widely used to optimize traditional data-driven approaches in different areas of

Artificial Intelligence

Fuzzy Logic
Robotics
Game Theoretic Learning
Planning, Schedule and Optimization
Turning Test
Natural Language Processing
…

Heuristic Techniques
Swarm Intelligence
Expert Systems
Logical AI
Inference
Evolutionary Algorithms
…

Machine Learning

Unsupervised Learning
• Clustering
• Metric Learning
• Sparse Dictionary Learning
• Anomaly Detection
• Association Rule Learning
• …etc.

Supervised Learning
• Decision Trees
• Linear/Logistic Regression
• Support Vector Machines
• Linear discriminant Analysis
• Similarity Learning
• Naive Bayes
• Neural Networks
• …etc.

Deep Learning

Reinforcement Learning
• Markov Decision Processes
• Bayesian RL
• Deep Q Networks
• Q-Learning
• Proximal Policy Optimization
• Monte Carlo
• …etc.

the scientific research. Vehicle-to-everything (V2X) system together with AI can acquire the information from diverse sources, can expand the driver's perception, and can predict to avoid potential accidents, thus enhancing the comfort, safety, and efficiency of the driving. This paper presents a comprehensive survey of the research works that have utilized AI to address various research challenges in V2X systems. We have summarized the contribution of these research works and categorized them according to the application domains. Finally, we present open problems and research challenges that need to be addressed for realizing the full potential of AI to advance V2X systems.

Feedback: Vehicle to Everything (V2X) is a vehicular communication system that supports the transfer of information from a vehicle to moving parts of the traffic system that may affect the vehicle. The main purpose of V2X technology is to improve road safety, energy savings, and traffic efficiency on the roads. is a very useful technology and the demand from the industry seems to be growing every year. AI has the potential to make traffic more efficient, ease traffic congestion, free driver's time, make parking easier, and encourage car- and ridesharing. As AI helps to keep road traffic flowing, it can also reduce fuel consumption caused by vehicles idling when stationary and improve air quality and urban planning. Vehicle-to-X technology (V2X) helps to reduce the number of deaths by making the invisible, visible. An electronic emergency brake light, for example, warns the driver that a vehicle that is nearby but not visible is beginning to brake. V2X can also help to detect road hazards or vulnerable pedestrians.

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ONE DAY SEMINAR ON

Artificial Intelligence in Vehicle to Everything (V2X) Communication Technology

On 25th August,2022 10:00 am, venue -Seminar Hall

PATRON
Prof T Ashok, Registrar, AKNU.

PATRON
Prof S. Teki, OSD AKNU.

CO - PATRON
Dr V Persis, Principal UCE, AKNU.

KEY SPEAKER
DR. GURALLA KIRAN KUMAR,
HOD, Department of ECE,
National Institute of Technology, AP.

CHIEF PATRON
Prof M JAGANNADHA RAO,
Hon'ble Vice Chancellor
Adikavi Nannaya University

Student Coordinators

V. Gemini Jayanth - IV B. Tech ECE
V Sriya Sarvani - IV B. Tech ECE
M. Ayyappa - III B. Tech ECE
SK Rehena - III B. Tech ECE

CONVENER
Mr. B Sudha Kiran
Course Coordinator, Dept Of ECE

CO CONVENERS
Mr. A Vijaya Durga, Asst Prof Dept of ECE
Mr. B Krishna, Asst Prof Dept of ECE
Mrs. B Annie Keziah, Asst Prof Dept of ECE
Mr. P Venkata Ratnam, Asst Prof Dept of ECE
Mrs. N Santoshi, Asst Prof Dept of ECE

ఆర్టిఫీషియల్ ఇంటిలిజెన్స్‌పై పట్టుసాధించాలి

రాజానగరం: ఆర్టిఫీషియల్ ఇంటిలిజెన్స్, సాంకేతికత పరిణామాలపై పట్టు సాధిస్తే టెక్నాలజీ రంగంలో ఎక్కువ అవకాశాలు లభిస్తాయని ఆదికవి నన్నయ యూనివర్సిటీ వీసీ ఆచార్య ఎం.జగన్నాథరావు అన్నారు. యూనివర్సిటీ కాలేజ్ ఆఫ్ ఇంజినీరింగ్‌లో డిపార్టుమెంట్ ఆఫ్ ఎలక్ట్రానిక్స్ అండ్ కమ్యూనికేషన్ ఇంజినీరింగ్ ఆధ్వర్యంలో 'ఆర్టిఫీషియల్ ఇంటిలిజెన్స్ ఇన్ వెహికల్ టూ ఎవ్రిథింగ్ కమ్యూనికేషన్ టెక్నాలజీ' అనే అంశంపై గురువారం సెమినార్ జరిగింది. వాహన సెన్సార్లు కూడా కాలక్రమేణా అప్‌డేట్ అవుతున్నాయని, ఫలితంగా వాహనాలు పర్యావరణాన్ని బాగా అంచనా వేస్తున్నాయన్నారు. వెహికల్ టూ ఎవ్రిథింగ్ కమ్యూనికేషన్ సిస్టమ్‌లో ట్రాఫిక్ సామర్థ్యం, రహదారి భద్రత, శక్తి సామర్థ్యాలు వంటి ప్రధాన అంశాలు ఉంటాయన్నారు. ఎన్ఐటీ ఏపీ ఈసీఈ హెచ్ఓడీ డాక్టర్ జి. కిరణ్‌కుమార్ ఆర్టిఫీషియల్ ఇంటిలిజెన్స్ ఇన్ వెహికల్ టూ ఎవ్రిథింగ్ కమ్యూనికేషన్ టెక్నాలజీ గురించి పవర్‌పాయింట్ ప్రెజెంటేషన్ ఇచ్చారు. కార్యక్రమంలో ప్రిన్సిపాల్ డాక్టర్ వి.పెర్సిస్, బి.సుధాకిరణ్, ఎ.విజయదుర్గ, బి.కృష్ణ, వి.యానికెజియా, పి.వెంక

సమావేశంలో మాట్లాడుతున్న వీసీ ఆచార్య జగన్నాథరావు

టరత్నం, ఎన్.సంతోషి పాల్గొన్నారు.

15న నన్నయలో 'అద్విక 22'

రాజానగరం: ఆదికవి నన్నయ యూనివర్సిటీ క్యాంపస్‌లోని కాలేజ్ ఆఫ్ ఇంజినీరింగ్‌లో సెప్టెంబరు 15న 'అద్విక 22' జరగనుంది. ఇంజినీర్స్ డే సెలబ్రేషన్స్‌లో భాగంగా నిర్వహించనున్న ఈ కార్యక్రమానికి సంబంధించిన బ్రోచర్‌ను వీసీ ఆచార్య ఎం.జగన్నాథరావు గురువారం విడుదల చేశారు. ప్రిన్సిపాల్ డాక్టర్ వి.పెర్సిస్ ఈ కార్యక్రమానికి కన్వీనర్‌గా వ్యవహరిస్తారు. ఆసక్తి ఉన్న విద్యార్థులు యూనివర్సిటీ వెబ్‌సైట్‌లో రిజిస్ట్రేషన్ చేసుకోవాలన్నారు.