Key learning from SAT component- **Date: 10/12/2022**

1. Paper -1: "*Autonomous Cars: Past, Present and Future review of the Developments in the Last Century, the Present Scenario and the Expected Future of Autonomous Vehicle Technology*" from ICINCO-2015.
   This paper enclosed the advent of vehicular automobile evolution over time in a chronological order. Covering from simple radio-controlled vehicle to more sophisticated autonomous technologies i.e., driverless tesla vehicle. We groomed our understanding of vehicular technology spanning from simple cruise control, collision avoidance system, lane switch over assistance, anti-braking system, driver assistive navigator, drowsy detector etc., Learnt a lot about the scope in communication related aspect in vehicular system, especially V2V, V2I, V2R using VANET platform.
2. Paper -2: "*Contents Delivery for Autonomous Driving Cars in Conjunction with Car Navigation System*" – In proceedings of IEICE.
   We learnt the autonomous driving vehicle supporting infrastructure. Comprehended the establishment of Intelligent transportation system, for the support of semi-autonomous and future-ready fully autonomous vehicle in roads. This paper helped us to understand the kind of intrinsic details that need to be addressed – especially the mobile nature of vehicles because of which the hand-over issue becomes more dominant in such area. We also learnt how such handover issues are addressed in the architecture design.
3. Paper -3: "*Vehicle-to-vehicle wireless communication protocols for enhancing highway traffic safety*" Communications Magazine.
   We wanted to proceed our study into the domain of communications in vehicular automation. This paper gave us an application of V2V communication protocol – cooperative collision avoidance system. Where we learnt very interesting possibility with vehicle-to-vehicle communication in platoon to cooperatively work to avoid cascading collision in highway roads. Also, the paper helped us to explore the communication standards and protocol used in such safety critical applications (i.e., DSRC radio standards).
4. Paper -4: "*An approach to avoid traffic congestion using VANET*" proceedings of 2014 5th International Conference on Next Generation Networks and Services.
   This paper is completely related to Vehicular ad-hoc network (VANET). A novel method to address traffic congestion problem by the author using VANET technology. Using the ITS infrastructure, and building a RSU to collect vehicular traffic parameter and serving same to path planning algorithm to optimally yield traffic reduced pathway. We learnt about various algorithms in path planning and optimisation problem i.e., Dijkstra's, which was covered in the paper.
5. Paper 5: "*Applications of VANETs: Present & Future*" proceedings of 5thcommunications and Network, 2015.
   This paper was picked to seek an answer for a very fundamental question – What information do VANET transceive and how its useful in the domain of automobile system. We learnt various classification of applications targeted using VANET, and its implementation challenges. Learnt the kind of data hand-shaking that would be involved to achieve some goal i.e., Traffic vigilance system, automated toll collection unit. We also understood the challenges like cyber security concerns that would arise in VANET.
6. Paper -6: "*Virtual Traffic Light Implementation on a Roadside Unit 802.11p Wireless Access in Vehicular Environments*" – In proceedings of Sensors 2022.
   In this paper, we learnt the implementation challenges of VANET traffic management system using FPGA. We learnt how the blind intersection could have a RSU that can act as a virtual traffic signal to incoming vehicles. We read the whole implementation methodology, and its linking with cloud using RaspberryPi module, with FPGA interface as RSU. Further we also explored RSU-VIM traffic management algorithm that works inside core FPGA.