Notice for MSc. Engineering Thesis Students

I am interested to supervise one MSc. Engineering Thesis student in Intelligent Transportation Systems (ITS) in the following topic. Interested students are asked to contact me at tanveerawal@cse.buet.ac.bd or tanveerawal@gmail.com with their CVs. Preference will be given to students with high CGPA and strong academic background.

Cybersecurity Challenges and their Solutions in Connected Autonomous Vehicles (CAVs) or Vehicular Ad hoc Networks (VANETs).

Connected and Autonomous Vehicles (CAVs) are a vital breakthrough in the automotive industry and a superb step toward a safe, secure, and Intelligent Transportation System (ITS). CAVs offer great benefits to our society and environment, such as alleviation of traffic accidents, reduction in traffic jams, fewer emissions of detrimental gases, etc. However, emerging automotive technology also has some grave safety concerns. One of them is cyber security. Conventional vehicles are less prone to cyber-attacks, but CAVs are more susceptible to such events as they communicate with the surrounding infrastructure and other vehicles. CAVs are outfitted with state-of-the-art sensors and modules like LiDAR, GPS, RADAR, onboard computers, cameras, etc. in order to collect data for a better perception of their surroundings Hackers, terrorist organizations, and vandals can manipulate this sensor data or may access the primary control of autonomous vehicles by cyber-attacks, which may result in huge fatalities.

This research work will aim to provide an overview of cybersecurity challenges in CAVs at the module and software levels. Then an effective defensive solution will be proposed to handle at least one specific cybersecurity threat. Finally, the effectiveness of the defensive solution will be demonstrated by means of simulations.

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