

## **Report on Webinar on Applications of AI in Power Grid**

IEEE PES MSIT in collaboration with Electrical and Electronics Engineering Department, MSIT organized a webinar on AI Application in Power Grid Systems to address the interlink between AI and Power grid systems by Pantech e-learning on 31<sup>st</sup> July 2020.

Mr. Sreenivasalu Ala was the speaker for the webinar. The webinar was forecasted live on 'YouTube' Channel with 250+ participants. Started with a warm welcome note by Prof. KP Chaudhary, Director MSIT, and a quick introduction of the institution, the speaker initiated his presentation. Covering the very known fields of electrical engineering, the concept of Artificial Intelligence was slowly introduced and the crucial interlink between the two with essential practical applications were discussed. With AI being one of the hot topics, to maintain the stream with the webinar, the goal and domains of AI was explained. How machines can mimic human intelligence with rationality differences were well demonstrated with examples of recent developments in the worlds. Moving ahead towards the power grid systems, the speaker explained the various angles of electrical power generation, transmission, distribution and utilization and the idea of power grid systems was presented with elaborative examples. The speaker then moved to the theme of the talk, and talked about approaches used in AI with reference to electrical applications.

With AI being a field of large circumference, various basic and advanced concepts were discussed. The speaker discussed how an artificial neural network mimics a human brain. Various applications of ANN like power system stabilizer, load forecasting, fault diagnosis, security assessment, state estimations, contingency screening, voltage stability assessment, protection and load modeling were discussed in detail, in way covering the basic idea and applications. When comes to applications, and to stress on importance of AI in performance improvement of the established power systems and grids, systems like fuzzy systems which is popularly used to diagnose the fault, ANN to predict p and ensure proper functioning, expert systems and environmental sensor systems with integration of AI were discussed.

With an aim to bridge the gap between theoretical understanding and practical implementation, a live simulation-based project showing how one can simulate the power systems with appropriate and defined parameters and apply various methods and models to get a brief overview of how practically the power industry works, was also demonstrated. This not only helped them to get an insight of how the pre installments of power grid system happen but also raised their confidence in getting started with it.

The webinar concluded with a demonstration of the live project and various resources were shared to gain knowledge in the related domain. Keeping up the curiosity and synchronization with the recent developments happening over the world, topics like electrical vehicles, deep learning, IoT etc. were also touched. A gesture to thank the entire team and all the stake holders involved was presented at the end.