IEEE - MVSR STUDENT BRANCH
Student Branch Code: 12161, School Code: 41329276

Hybrid Renewable Energy Integration to Grid

IEEE MVSR PES chapter has conducted a webinar on Hybrid renewable Energy Integration to Grid on 16th September,2020. This webinar's main motto was to help students gain knowledge of various renewable energy sources and how the complementary renewable energy sources can be used to fulfill future power requirements.

Student Branch Mentor:

Dr. Atul Negi,
Professor, School of CIS,
University of Hyderabad

Student Branch Advisor:

Dr. G. Kanaka Durga,
Principal and Professor,
MVSR Engineering College.

Student Branch Counsellor:

Dr. D. Hari Krishna,
Associate Professor, EEE Dept.,
MVSR Engineering College.

WIE Affinity Group Advisor:

Mrs. A. Vijaya Vahini,
Assistant Professor, IT Dept.,
MVSR Engineering College.

PES Student Chapter Advisor:

Dr. D. Hari Krishna,
Associate Professor, EEE Dept.,
MVSR Engineering College.

CS Student Chapter advisor:

Mrs. B. Saritha
Associate Professor, CSE Dept.,
MVSR Engineering College.

CASS Student Chapter Advisor:

Mrs. S. Aruna
Assistant Professor, ECE Dept.,
MVSR Engineering College.

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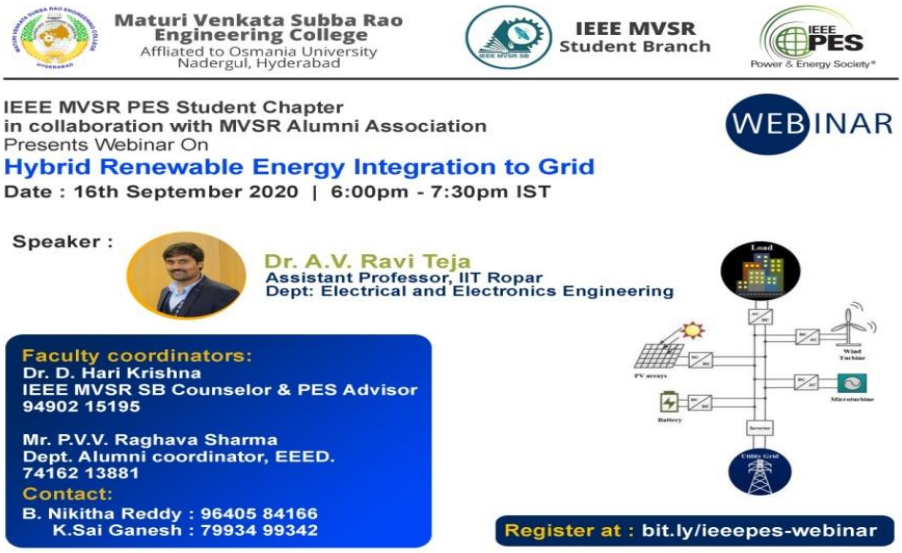
Session details:

Date:16th September,2020.

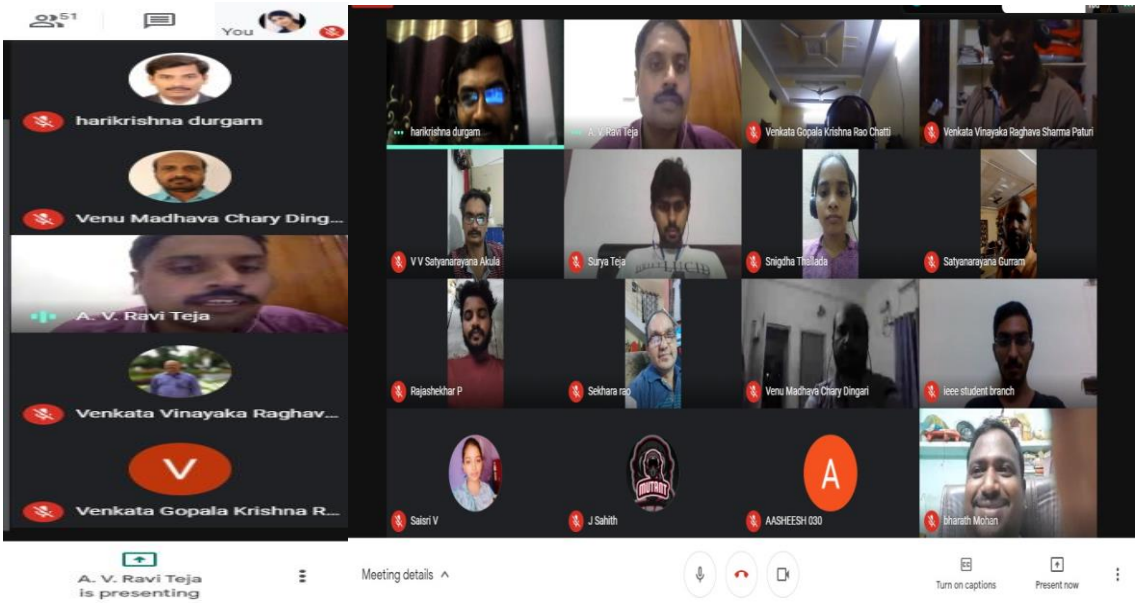
Time:6:00pm – 7:30pm

No. of participants: 51



Poster for the event.

The speaker for the webinar was Dr. A. V. Ravi Teja, Assistant Professor, EEE Department, IIT Ropar. He is alumni of MVSR Engineering College. Dr. Ravi Teja received his Ph.D from the Department of Electrical Engineeering , IIT Kharagpur in 2016. His thesis title is “Adaptive Sensorless Induction Motor Drive with Sliding mode Contollers: Analysis , Simulation and FGPA based Implementation”. Prior to this,he received his B.E. degree in Electrical and Electronics Engineering from Osmania University, Hyderabad, India, in 2008, and the M.Tech. degree in Machine Drives and Power Electronics specialization from the Indian Institite of Technology, Kharagpur,India in 2010. His research areas of interest include Electric Machine Drives, Power Electronics and Control Systems.



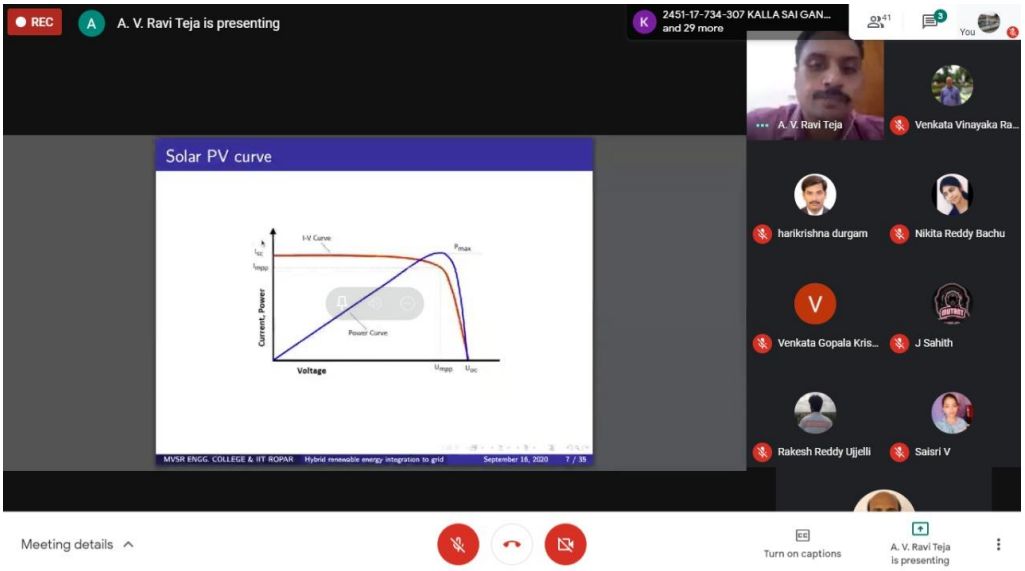
Attendees in the session

IEEE MVSR PES Chairperson Ms. B. Nikitha Reddy initiated the session by welcoming the speaker, faculty of MVSR Engineering College and all the attendees who have attended the webinar. Then, she invited Head of Electrical and Electronics Engineeering Department of MVSR Engineering College Mr. C.V.G.K. Rao to address the attendees. He has exclaimed that he is very proud of the speaker as the speaker was the alumni of MVSREC and appreciated the efforts of Dr. D. Hari Krishna and Mr. P.V.V. Raghava Sharma for conducting webinars which give insights about the new technology.

Later, D. Venu Madhava Chary, Professor , EEE Dept. MVSREC, addressed the meeting and congratulated Mr. Ravi Teja sir for his successful career. Later, Dr. D. Hari Krishna, Student Branch Counsellor, IEEE MVSR SB, Associate Professor EEED MVSREC, has welcomed the speaker, Head of the EEE Department, and faculty. He briefed about IEEE MVSR SB and presented a timeline of events conducted under the student branch along with the awards bagged by SB. He thanked Mr. P.V.V. Raghava Sharma, Assistant Professor EEE Department, for the event coordination and handed over the session to him. Mr. Sharma has introduced the speaker to the attendees and handed over the session to Dr. A. V. Ravi Teja.

The speaker has begun the session by thanking IEEE MVSR SB and MVSR Alumni association for providing this opportunity. He explained why non-renewable energy sources are an issue and why renewable energy sources must come into the picture. He shared few statistics of Renewable Energy Generation which included the energy that can be generated and the share of energy generation of various renewable resources.

Later he explained about the available renewable energy generation schemes and their disadvantages. He described about the features of Solar Power, illustrated the Solar PV Curve and told that it is essential to understand the Solar Power Generation. He has shared the schematic diagram of a Solar Power Generation System, explained about the components and also how the power in the system flows.

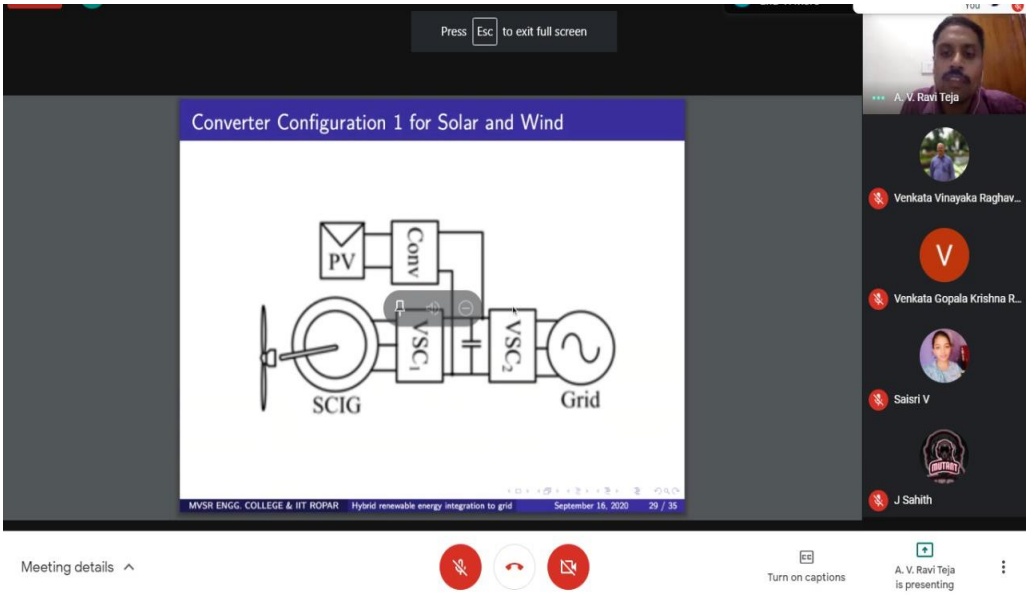


Speaker showing the Solar PV Curve

Later, he encapsulated the Wind Power and shared with us the fact that only 59%(theoretically) of wind energy can be converted into electrical energy. He has explained about the two types of wind turbines, their features and has differentiated them. He has illustrated the various forces acting and the aerofoil and emphasized the lift and drag forces which play crucial role in generation of power.

He has given the clear idea about various control mechanisms of wind turbines and explained how they improve the efficiency of the system. He has shared some definitions which determine the charactersitics of a wind power generation system. Later, he displayed a graph and breifly explained how wind speed depends on the output power from that graph. He also showed the wind energy distribution curve which tells us at what wind speed the maximum output is produced.

Later, he has explained about the hybrid renewable energy generation and why it is vital. He also gave a brief introduction on the complementary renewable resources and their advantages. He has illustrated various converter configurations for solar and wind and briefly explained by comparing them.



Speaker showing one of the Converter's Configuration.

He has expounded that storage/battery requirement is small when complementary renewable sources are used and this also can be eliminated if we include biomass energy with solar and wind energy. He has shared some other complementary sources and concluded by disclosing the advantages in terms of cost and efficiency of complementary renewable sources.

Later, the speaker has patiently cleared the doubts raised by the attendees in question and answer session. The session came to an end after the vote of thanks proposed by IEEE MVSR PES Joint Secretary Mr. G. Surya Teja.

REPORTED BY –
IEEE MVSR SB.