

Inauguration of CSIR-CEERI Innovation-cum-Incubation Hub at Jaipur & One-Day Workshop on Internet-of-things (IoT) and Renewable Energy Technologies

Innovation-cum-Incubation Hub, Jaipur (IIH-Jaipur) of CSIR-CEERI, Pilani has started functioning from SATCOM-DST, Jaipur (Known as Indira Gandhi Panchayati Raj & Gramin Vikas Sansthan, Jaipur, Jawahar Lal Nehru Marg, Jaipur) on 17.07.2017. The office building has been allocated by the Department of Science and Technology, Govt. of Rajasthan. The allocation of the office space was announced by the honourable minister of science & technology (Rajasthan) Mrs Kiran Maheshwari on March 1, 2017 to facilitate the functioning of the IIH activities at once as the actual IIH building of the institute is under renovation at Malviya Industrial Area, Jaipur.

To commemorate the inaugural day, a one-day workshop on **Internet-of-Things and Renewable Energy Technologies** was organised. The aims of the workshop were to identify the technological gaps, skill gaps, and build the alliances with industries, MSMEs, start-ups and entrepreneurs. It was also aimed at utilising the innovations, research outcomes and expertise of CSIR-CEERI in the areas of IoT, renewable and smart energy systems. Fifty (50) industrial representatives participated in the workshop. During the event, CSIR-CEERI signed two MoUs with M/s Rajasthan Tools and Spares, Jaipur and JK Lakshmiapat University, Jaipur.



Acharya Satya Dev inaugurating IIH office premises at Jaipur

Acharya Satya Dev, a contemporary and disciple of Pandit Shriram Acharya inaugurated the office premises. Shri N. L. Meena, Commissioner, Department of Science & Technology, Govt. of Rajasthan inaugurated the workshop. Prof. Santanu Chaudhury, Director, CSIR-CEERI presided over the inaugural function.



Prof. Santanu Chaudhury, Director CSIR-CEERI delivering the inaugural speech

In the inaugural speech, Prof. Santanu Chaudhury said that IIH has been set up with an aim to align with the Govt of India programmes such as Make-in-India, Start-up India and Skill India. He further added that CSIR-CEERI would conduct high-quality and product oriented research at IIH, Jaipur to meet the specific requirements of the industry. CSIR-CEERI would also disseminate first-hand research results to MSMEs and Start-Ups for product innovation. The state-of-the-art facilities would be created to support engineering design, product evaluation and test certification. The IIH would also have a co-working platform and provide opportunities for interaction with the investors and technology seekers. CSIR-CEERI would create a full environment for developing innovative electronic products in collaboration with MSMEs and Start-Ups. Towards the end of the speech, he thanked Smt. Kiran Maheshwari, Honourable Minister for extending committed support for CSIR-CEERI-IIH activities.



Sh. N.L. Meena, Commissioner, DST, Govt. Of Rajasthan addressing the participants

Shri N. L. Meena, Commissioner, Department of Science & Technology (DST), Govt. of Rajasthan said that he felt happy to learn that a prestigious science laboratory of the country has been making efforts to connect with the common people in solving some of their genuine problems. The development of science spirit among the students, small scale industries and start-ups has been the key objective of DST, Govt. of Rajasthan. He welcomed the move and the efforts made by CSIR-CEERI in this direction. He assured for their dedicated support and hoped that IIH, Jaipur would help in solving the problems of the state of Rajasthan.

Dr Ram Prakash, Head, CSIR-CEERI-IIH, Jaipur coordinated the programme. Dr S. A. Akbar, Head, Project Management and Business Development (PMBD), CSIR-CEERI proposed the vote of thanks.

There were technical sessions related to Internet of Things (IoT) and its applications. During the first session, four talks were delivered; Dr Kota Solomon Raju (Keynote speaker), Dr Ajay Agarwal (Gas sensors and environmental applications), Dr Anil Saini (Energy management in offices/buildings), and Mr Sai Krishna Vaddadi (RO plant monitoring & management for community water supply).

In the second session, the smart water grid concept & its implementation scheme useful for smart city Jaipur was presented by Dr S. A. Akbar. The solar testing facility & its scheme at IIH, Jaipur was presented by Mr Ajeet Kumar Dhakar.

In the third session, there were presentations on IoT-enabled solar inverter by Mr Brijender Verma; Photovoltaic thermal-hybrid-solar-collectors and solar tree as IoT node by Dr Bala Pesala.



Exchanging of MoU documents between CSIR-CEERI and M/s Rajasthan Tools and Spares, Jaipur



Exchanging of MoU documents between CSIR-CEERI and JK Lakshmipat University, Jaipur

In the concluding session, it was informed that CSIR-CEERI has been actively involved in the R&D activities related to IoT and modern solar technologies.

- CSIR-CEERI has designed and developed 500 W and 1kW solar trees optimised for various geographic locations using actual solar insolation data. The technology has been transferred to Central Electronics Limited (CEL), Sahibabad. CSIR-CEERI is also working on integrating the lighting, Wi-Fi connected sensors (for pollution and environment monitoring) and smart camera systems for security and surveillance. Scaling-up of the technology to 3 kW and 5 kW is in progress. The

technologies can be easily deployed in the cities (alongside the roads and highways), in decentralised power generation applications, in agriculture lands and at borders for security

- CSIR-CEERI has designed and fabricated 100 W prototype of simultaneous electrical and thermal energy source using a single solar system, which is a low-cost scheme and substantially saves roof space. Scaling-up of the technology to 1 kW and 10 kW is in progress
- High contrast grating based smart power windows have also been developed for generating power, providing natural light and to reduce air conditioning load of a building. Smart power window based on nanophotonic structure showed power generation potential of 20-40 W/m². Fabrication and scaling-up of the technology are currently in progress
- CSIR-CEERI has developed 5 HP solar pump inverter. Scaling it up to 10 kW and the grid-tie option is being added while the pump is not in use
- Recently, 1 kW Grid-tied solar inverter has also been developed, which maintains the THD less than 5 % over 50 % to 100 % of the power range. Presently, scaling it to 3 kW with battery charging feature and seamless transition between grid-tie to stand alone mode is being pursued

Several industries have shown a keen interest in taking up CSIR-CEERI products to the market.

Towards the end of the workshop, Dr Ram Prakash proposed the vote of thanks.