Techkriti 2010 Annual Technical festival of **IIT Kanpur**

[Report for DREAM 2047 typed]

Radio Active 2010 Ham Radio Events at IIT Kanpur

IIT Kanpur has an active ham radio club instrumental in motivating the future technocrats to the world of ham radio. The ham radio club station VU2IIT is equipped with state-of-the-art Satellite Ready Transceivers and half a dozen handheld VHF transceivers including dozens of VHF Yagi antennas made by the students. Despite the fact that most of the students pass out from the institute without getting their ham radio licences [due to the complicated licence issuing process], new batches of students have never been losing their passion for the hobby of ham radio. Students at the Microwave Laboratory are presently designing a Nano Satellite category satellite [nick named *'Jugnu'*] for digital communication and telemetry data transmission in the VHF and UHF ham bands. The ham satellite will give information related to drought, flood, agriculture and forestry.

Techkriti is an annual Technical Festival organized by the Students of IIT Kanpur. *'Radio Active'* is a competitive ham radio event conducted every year on this occasion involving various ham radio related activities attracting students from different engineering colleges across the country. This year also, Techkriti 2010 was conducted in a big way from February 11 to February 14, 2010, where scientists from different countries attended as guest lecturers including SETI [Search for Extra-Terrestrial Intelligence] Scientist ham radio hobbyist Dr Howard Paul Shuch, N6TX [who designed the world's first commercial home satellite TV receiver (1978) and presently SETI Leagues' Executive Director Emeritus].

Dr SETI Howard Paul Shuch, N6TX

While deliberating his technical presentation Howard Paul Shuch, N6TX also entertained the ham radio and astronomy enthusiasts by playing his guitar and singing songs related to SETI.

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The *'Radio Active'* event was coordinated by Mohsin Hasan Khan - a student of Department of Aerospace Engineering. Shri Rahul Srivastava, VU3WJM - a veteran ham and mentor of IIT Kanpur ham radio club guided the students in different category of competitive technical events [Electro Buzz and Telekino]. The club has been instrumental in developing software defined radio technology - a futuristic communication technology in India.

Shri Sandeep Baruah, VU2MUE [Scientist-D, Vigyan Prasar]- another mentor of IIT Kanpur ham radio club attended as a guest lecturer deliberating lectures and demonstrations on different ham radio digital communication technologies [Packet Radio, Automatic Packet Reporting System (APRS), Citizens Weather Observation Programme (CWOP) involving weather data sensors integrated to ham radio equipment for packet telemetry transmission etc.]. Multifaceted applications of ham radio were demonstrated by Shri Baruah including demonstration of ham radio text

messaging and computer to computer communication using radios hooked to the computers for file uploading and downloading without the use of Internet.

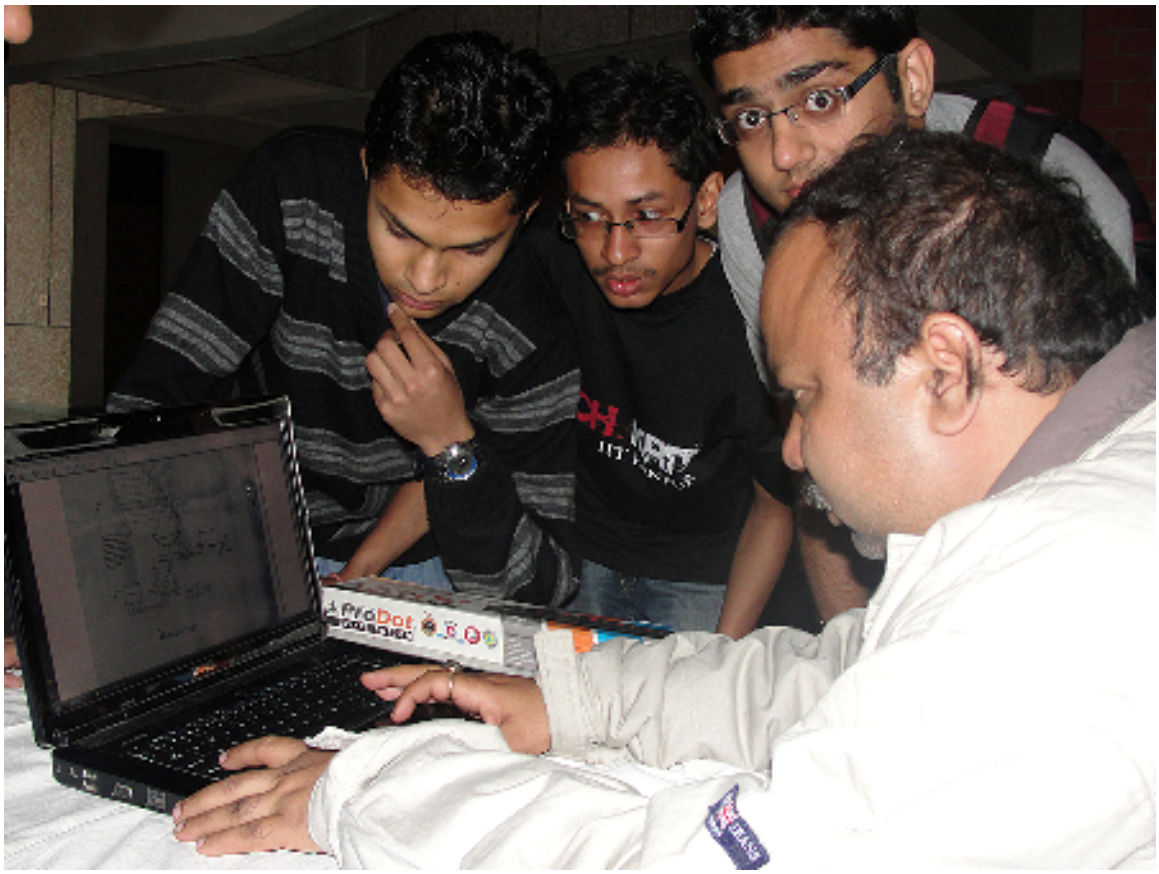
It was emphasized in his lecture about the possibility of exploring the voluntary services of ham radio hobbyists across the country in transmitting and exchanging of close-proximity weather information through a digital repeater [digipeater] network. At present there are only about 300 weather stations maintained by IMD. According to an estimate, India needs around 20,000 automatic weather stations for collating and analyzing the weather information by the meteorologists and agriculturists for better accuracy in the prediction models. Hams can contribute in dissemination of these data if an effective digital ham radio network can be established, which will benefit the farmers.

Sandeep Baruah, VU2MUE, [Scientist-D, Vigyan Prasar] mentor of VU2IIT ham radio club with the Fox Hunters

One of the exciting and thrilling ham radio events conducted was the *Fox Hunt*. Fox hunt is a radio sports pursued by hams from time to time to track and hunt a fox [which is a hidden radio transmitter where a beacon device is hooked and transmitting at a very low power at a preprogrammed

interval] -- probably the term is preferred by the hams because a fox is usually considered as a cunning animal not liked by other fellow animals.

During the fox hunt event at IIT Kanpur, an ICOM IC W32A Full-Duplex Cross Band VHF Walkie-Talkie was used as the fox connected to a PIC Microcontroller pre-programmed to transmit a beacon message in Morse Code "VVV DE VU2IIT" [Which is the standard regulatory method of 'test transmission' for experimentation]



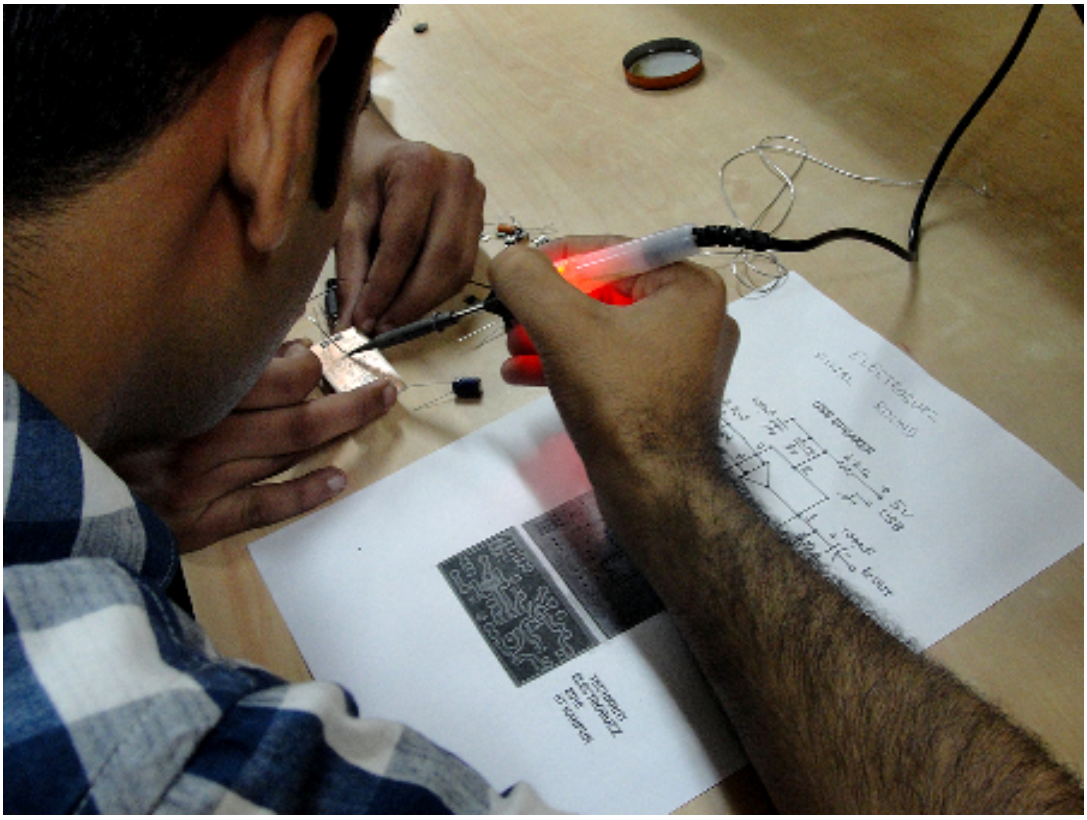
Shri Rahul Srivastava, VU3WJM [Mentor, VU2IIT ham radio club] evaluating a project during the Electro Buzz event.

The Fox hunt was literally going on Day and Night. Due to the thrill and excitement involved in tracking down a hidden fox transmitter, many students even shunned other events to participate in ham radio fox hunting. In fact FOX HUNT is a first hand experience for the students to be fast and aggressive to beat the enemies chasing a single or multiple fox. The thrill of holding the ham Walkie-Talkie connected to an Yagi beam antenna and chasing the fox is once in a life time opportunity for many of the students.

Fox Transmitter with a Pic microcontroller making ready to be hidden beneath a pile of bricks

Sandeep Baruah, VU2MUE and Rahul Srivastava, VU3WJM making ready the ham radio digital communication system

Sandeep Baruah, VU2MUE deliberating presentation and demonstration on ham radio digital communication technologies



A student participant during the final round of Electro Buzz competition

Sandeep Baruah, VU2MUE with student coordinator Mohsin Hasan Khan [Extreme right] making ready the Fox transmitter to be hidden beneath a pile of bricks