ATHARVA EDUCATIONAL TRUST'S

ATHARVA COLLEGE OF ENGINEERING

(Approved by AICTE, Recognized by Government of Maharashtra
& Affiliated to University of Mumbai - Estd. 1999 - 2000)

Academic Year 2018-2019

Department of Electronics and Telecommunication

Date: 28th Feb, 2019

INDUSTRIAL VISIT REPORT (SAMEER IIT POWAI)

Visit 2018-19 Even

Location: Sameer IIT Bombay Powai on 28.02.19 For Science Day

Sr. No.	Name of Student	Mobile No.	Email-ID	Signature
1.	PRITI VICHARE			
2.	PRITI SINGH			
3.	KOMAL SUTAR			
4.	VISHAL GUPTA			
5.	NAMAN VERMA			
6.	SANJAY BANE			
7.	DEEPAK THAKUR			
8.	SACHIN HAKKE			
9.	DIPESH MANDEWALA			
10.	BHARAT MANIGIRI			
11.	RAHUL PANCHAL			
12.	AKSHATA SARODE			
13.	SHRUTI REDKAR			
14.	JIMI PATEL			
15.	SUSHMA AMUDALAPAIIY			
16.	KOMAL RANA			
17.	PRITI VICHARE			
18.	SHREERAJ PALANDE			
19.	PRALHAD SING			
20.	KAJAL DESAI			
21.	NEHA VERMA			
22.	MAYURI PATHARE			
23.	AISHWARYA SAWANT			
24.	ISHANI PARKAR			
25.	MARIAM SHAIKH			
26.	DEEPASHREE RAI			
27.	TEJASWINI LOKARE			
28.	JASH SHAH			
29.	MEHUL SONI			
30.	JONAS ROBIN			

31.	NIMISH DATKHILE			
32.	SHRAVANI MHASHELKAR			
33.	GEETANJALI GAJARE			
34.	MADAV MENON			
35.	KOMAL PATOLE			
36.	NANDINI GOVINDRAJ			
37.	PRIYANKA KARAN			
38.	PRIYA KHANZODE			
39.	SUNITA SANAP			
40.	NISHANT KURADE			
41.	VAIBHAV YADHAV			
42.	AKSHAY TELI			
43.	JIDNESH MHATRE			
44.	SURAJ PATIL			
45.	SHEWTA CHAVHAN			
46.	SARVESH TAWDE			
47.	HEENA GOHIL			
48.	ZANKHANA PANDYA			
49.	ABHIMANYU CHAURASIYA			
50.	CHALCY NADAR			
51.	DIGAMBAR SONAWANE			
Faculty Incharge	**Prof.Tanu Sharma**			
	Prof.Manoj Mishra			

Prof. Supriya Vishal Dicholkar **Prof. Jyoti Kolap**

Prof. Mohan Kumar

Industrial Visit Coordinator **HOD,EXTC**

Introduction

SAMEER was set up as an autonomous R & D laboratory at Mumbai under the then Department of Electronics, Government of India with a broad mandate to undertake R & D work in the areas of Microwave Engineering and Electromagnetic Engineering Technology. It is an offshoot of the special microwave products unit (SMPU) set up in 1977 at the TATA INSTITUTE OF FUNDAMENTAL RESEARCH (TIFR), Mumbai. SAMEER, Mumbai was setup in 1984.
The centre of Electromagnetics, Chennai of the then Department of Electronics (DOE) was merged with SAMEER in 1987.

SAMEER Kolkata centre was set up in 1994 for research & Development in Millimetrewave Technology.

A new centre is being established at Navi Mumbai campus of SAMEER for augmentation of EMI/EMC FACILITY for CE Marking of Electronics products.

The Vision

- To achieve excellence in application oriented research in the areas of Microwave /RF Electronics and Electromagnetics.

The Mission

- Research & Development activities in the areas of its expertise.
- Engage in product development driven by technology and user requirement.
- Develop expertise in areas of competence.
- Create business division and to make it commercially viable in the long run
- Become multi disciplinary institution and to carter to diversified applications for Rf and microwave areas
- Undertake training ad consultancy in areas of competence.
- Keep pace with rapidly changing technology by continuous training of its manpower
- Become a non hierarchical organization empowering people at all levels with appropriate authority and accountability

Quality

- SAMEER is committed to meeting user agencies requirement by providing world-class technology and services. Continuous improvement and teamwork will guide our pursuit for excellence.

R & D Centers

Mumbai

- SAMEER, Mumbai is pursuing research and development in the field of Opto electronics, medical Electronics, Radar based instrumentation, Atmospheric Remote sensing & Meteorology, RF &

Microwave systems and components, Navigational electronics etc. Many of it's R&D outputs and spin-offs have found applications and acceptance in industry .

Chennai

- SAMEER-CEM, Chennai is pursuing Research and Development, Consultancy, test and evaluation services in the areas of electromagnetics and antennas, EMI/EMC, communications and thermal management.

Kolkata

- SAMEER, Kolkata , the youngest of the three Centres is pursuing R&D activities in the area of antennas, electromagnetics, RF/Microwave components and subsystems.

Milestones

SAMEER has been a pioneer in the development of technology in several areas.

It has developed:

- India's first MST Radar which is also the 2nd largest in the world.

- India's first indigenously developed Linear Accelerator for Cancer treatment.
- Energy efficient Drying/Heating System for textile, Food, Ceramic, Chemical, Pharma, Rubber applications through RF/Microwave.
- Microwave dis-infection system for hazardous hospital waste.
- Code division multiple access [CDMA] receiver.
- Microwave data link system [MDLS] for user agency.
- Broad-band sleeve monopole antenna .
- Wireless frequency hopping UHF data link.

It has established:

- India's first center for design and engineering facility for Opto Electronic devices.
- Class ten thousand clean room facility for space electronics hardware development.
- Full-fledged EMI/EMC test & evaluation facility for CE marking.
- RF/Microwave Antenna Measurement test facility.
- Thermal design and engineering facility.

The Pillars Of SAMEER

- Medical electronics
- Photonics
- EMI/EMC
- Radar instrumentation
- High power Microwave &RF systems and Components
- IT and communications
- Electronics and antennas
- Millimeterwave
- Electronic packing design

The R & D Backbone

Well directed R&D efforts help SAMEER to retain it's competitive edge. SAMEER is equipped with the latest state of the art facilities and equipments.

Significant Achievements

A few major achievements among the many that characterize the mission specific goals.

Antennas

Antennas for various applications that include line of sight communication, radar and navigation are undertaken. Capability exists for the design of microstrip patch, microstrip omni, log-periodic, yagi, sleeve monopole, whip and biconical log antennae.

Wide Beam Antenna

This is a modified dipole antenna to provide near hemispherical pattern coverage with beam width greater than 120 deg in both azimuth and elevation planes. This is required for a special purpose communication system.

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Cosecant squared Parabolic Reflector Antenna

Address :Malad-Marve Road, Charkop Naka, Malad (W), Mumbai 400095, Maharashtra, India

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A shaped reflector has been designed and developed to provide cosecant squared pattern in elevation and narrow pattern in azimuth . The antenna is used for ground radar application in airports.

Planar Microstrip Array Antenna at S- Band

This is an electromagnetically coupled planar microstrip array antenna for application in portable satellite communication terminal. The circulary polarized antenna operates in two frequencies; one for transmission and other for reception. It consists of two stacked layers separated by dielectric material of optimized thickness. The top layer consists of 4x4 array of radiating patches with removed ground plane. The bottom layer consists of 4x4 array of feed patches along with 3db branch line hybrids and associated feed lines.

ATMOSPHERIC INSTRUMENTATION

Various atmospheric instruments pioneered and developed by SAMEER include;
CW Bistatic RASS for Doppler SODAR

This CW bistatic radar operates at 712 Mhz as an attachment to Doppler Sodar. Normally Doppler Sodars are capable of giving wind speeds and wind direction profiles upto a height of 1km. This when combined with RF Radar system works as a RASS [Radio Acoustic Sounding System], giving temperature profile upto about 1 km.

UHF Wind Profiler

This ground based clear air pulsed Doppler radar working at 404.37 Mhz transmits 16KW pulsed RF power using a 40ft x 40 ft coaxial collinear antenna and receives echoes from various atmospheric layers. A sensitive receiver with state of art signal processing system has been used to detect the return echoes and derive wind parameters upto about 12km height with range resolution of 300m. This is also equipped with RASS attachment which gives temperature profiles upto 3kms.

MST Radar

A state of the art atmospheric radar system called Mesospheric Stratospheric Tropospheric [MST] radar has beeen designed, developed and installed at Gadanki village , near Tirupati . This radar, which is considered second largest in the world , is capable of detecting and measuring wind velocities, wind shear and other atmospheric turbulences upto a height of of 100 kms into the sky. The radar was commissioned in 1993 and since then it is fully operational. Scientists from all over the country primarily use the radar for atmospheric research.

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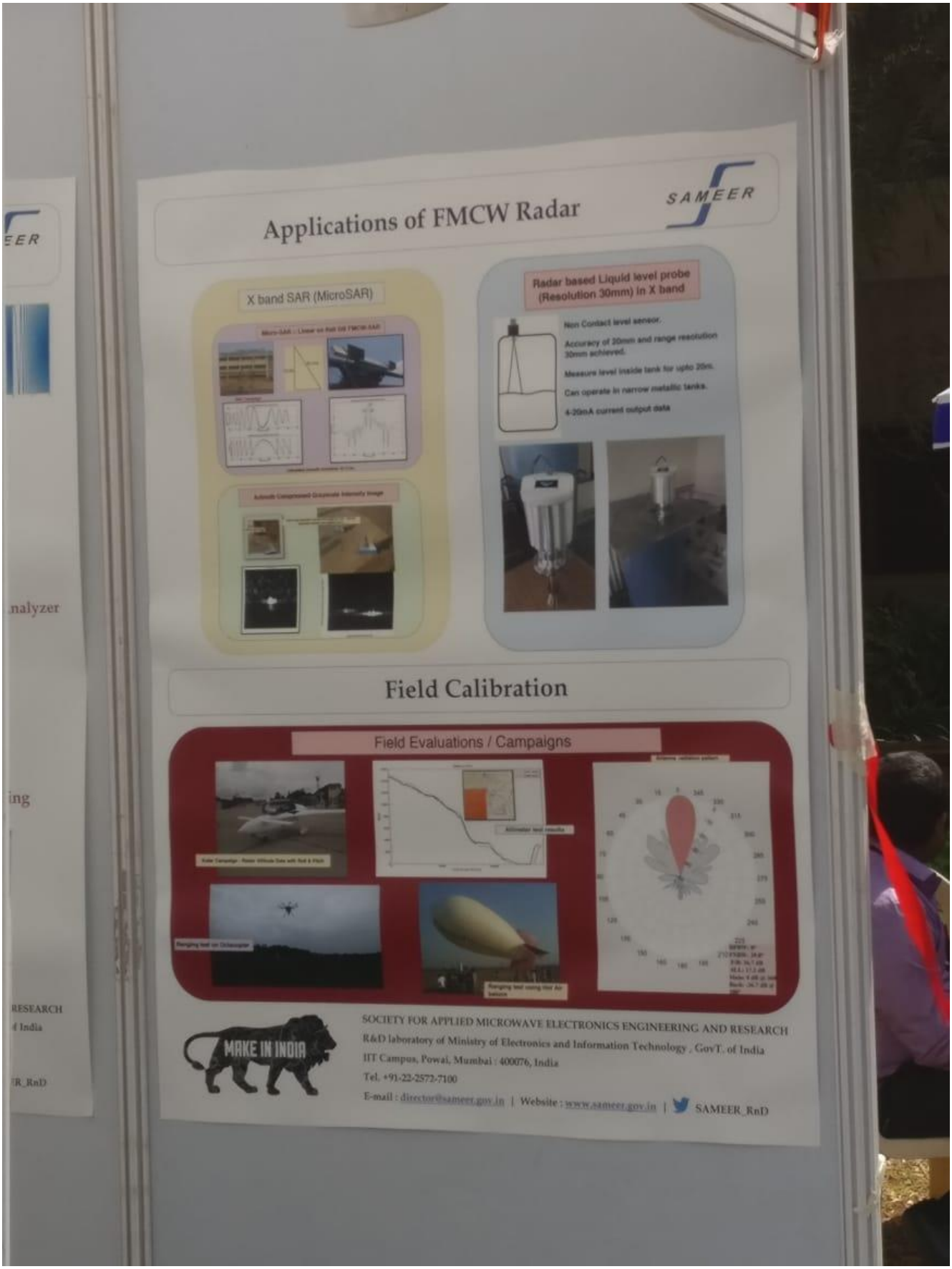

Doppler Sodar

Doppler Sodar [Acoustic sounder] is a standard technique used for measurement of atmospheric wind and turbulence parameters in the lowest 1000 mts of atmosphere. The data obtained from such instruments is needed for environmental impact assessment due to thermal as well as high risk chemical industries.

Radio Theodolite

Radio Theodolite is a classical ground instrument for getting atmospheric parameters like pressure, temperature and humidity upto a height of 30 km . The transmitter is launched in the atmosphere using high flying balloon and receives telemetered data. Several of these systems have been installed at various locations of India Meteorological9Apps Department.

COMMUNICATIONS

Cell phone Deactivator

This unit is 9apps useful to prevent cell phone operations in sensitive areas like VIP conference rooms , Silent zones of hospitals , cinema halls etc. It features Low cost, low power consumption, battery back-up . Coverage 100` x 100`. Larger area coverage can be achieved with multiple units.

Wireless modems

The UHF wireless data modem provides reliable high speed digital communication between data terminals using RF spread spectrum technology . These modems can be configured for point to point , point to multipoint , broad cast mode and as a repater . The wireless modems support data rate upto 115.2 kbps and communication range upto 500-1500 feet [indoor] and upto 25 kms [outdoor] under line of sight conditions.

PRBS Coded Data Generator

The code transmitter is an integral part of Disaster Warning System [DWS] provides cyclone-warning messages to the area prone to cyclone . When a particular area [called station] is to be addressed, a unique code for that station is set and data is transmitted from the cyclone warning center . The addressed code combined with disaster warning message will be transmitted to the satellite earth station through line

modem and dedicated telephone line . The receiver which is addressed by the code transmitter only receives the audio warning message.