

GUJARAT TECHNOLOGICAL UNIVERSITY



**Report
of**

**the Second Meeting of the Advisory Board of
GTU's e-Raksha Research Center**

and

A Meeting with Experts from DRDO , Delhi

held on

03rd May, 2015

at

GTU Chandkheda Campus

The first meeting of the Advisory Board of the e-Raksha Research Centre was organised on 27th January-2015. (Report available at http://www.gtu.ac.in/circulars/15Jan/Report_e-Raksha_Adviory_Meeting_27-Jan-2015_2.pdf). A news-item on establishment of the Center is available at <http://www.gtu.ac.in/Media/Jan15/27012015.pdf>.

The second meeting of the Advisory Board along with a meeting with the Experts from DRDO, New Delhi was held on Sunday, 3rd May 2015 at GTU's Chandkheda campus.

Introduction:

Cyber security is an increasingly essential requirement for our contemporary society. We exist in a data-centric world, where digital information pervades every aspect of our lives. With the growth in the use of internet and Internet Of Things (IOT), the challenge is to provide effective and accessible security solutions.

Many countries have been preparing for cyber war by developing and testing cyber weapons. It is predicted that in any future war, the first theatre of war may be the virtual world of cyber systems. A nation, which loses in the virtual war will be faced with a chaos in multiple areas as its Critical Information Infrastructure may be disabled by the victor.

Objectives of e-Raksha Research Centre: The main objectives of the Center are:

- Research in areas of cyber security, cyber defence, cyber intelligence, cyber peace and war
- Capacity building of Faculty Members, students, engineers and officers, who are working on Critical Information Infrastructure
- Development of malwares analysis test beds
- Development of tools and devices required for secure internet systems
- To support "Make in India" initiative through capacity building for study and design of secure Routers, Switches, Firewalls, Unified Threat Management systems and other network appliances

The Report:

At the outset Shri J. C. Lilani (I/c Registrar, GTU) and Dr. Pradeep Srivastava (Advisor Research, GTU) welcomed all the members and thanked them for making it convenient to attend the meeting as per schedule.

The meeting started with a presentation by Honourable Vice Chancellor of GTU, Dr. Akshai Aggarwal. He highlighted various activities being carried out at GTU and the relative status of technical education and research across the globe. He presented the vision of making GTU a 'hub of research, technology and entrepreneurship'. He emphasized that only a collaborative model can help India leap-frog to the front-ranks of contributors of research and new ideas in the world. He discussed the innovative e-learning approach and the

collaborative model, being initiated at GTU. He discussed three-level research structure at GTU. (Please see Appendices 1 and 2 on pages 8 and 9 about the GTU activities, which were briefly referred in the presentation.) He said that GTU was creating networks and creating teams, which could work collaboratively with other organisations for achieving common objectives.

After that Mr. Naresh Jadeja, Deputy Director presented an overview of GTU and emphasized the strengths of the university in various disciplines, courses and different research centres operational at GTU. The following initiatives of GTU were presented before the representatives of DRDO and members of the Advisory Board:

GTU Innovation Council, Vishwakarma Yojna, C-i-C3 (Community innovation CoCreation Center), Skill Development Centres for up-scaling the skill-set of the students, Contributor Personality Development Program, Student Start-up Support System (S4).

GTU's initiative for improving quality of research by organizing Research Week every year was applauded by all.

Dr. Pradeep Srivastava, Research Advisor, GTU said that the objective of the proposed e-Raksha Research Center was to create an ecosystem of cyber-security with involvement of Indigenous Industries. The proposed centre will have 5 ultra-modern labs. The laboratories will provide testing, certification and continuous assessment. He also presented initiatives of GTU in the field of Cyber Security and also explained the basic concept of the e-Raksha Research Center.

Dr. Satish Kumar, Distinguished Scientist & Chief Controller R & D (TM & SAM), DRDO, Delhi announced that DRDO is planning such 7 to 8 **Technology Development Research Centres**. The initiative has been taken up under **DRDO-academia interface**. The first such centre under the series will be e-Raksha Research Centre. We have to take care of security dimensions & technology R & D. We have to compete with the latest technology around the world. We have to implement modular approach in the world of rapidly changing technology. DRDO has 27,000 staff and 46 labs all over the India. So this will be great opportunity for students to work with DRDO.

The following inputs were provided by the members of advisory board on various elements of the proposed Research Centre:

1. Mr. Shekhar Dutt suggested that GTU should collaborate with research organizations such as ISRO, PRL, BEL, HPCL, BSNL and other similar organizations to carry out research in the areas, where students can contribute.
2. Mr. Shekhar Dutt explained that designing and up gradation are two different things. For up-gradation the academic and government organization (like DRDO) should work together because Government organizations like DRDO have bigger interfaces.
3. Mr. Shekhar Dutt suggested that live problems from various government departments should be taken up. These may be given as research projects to students/research scholars and he also added that interaction between users and students should be made possible to understand the problem.

4. Dr. S. D. Pradhan suggested that proactive approach of cyber security should be adopted to learn the behaviours of an attacker.
5. Mr. T. P. Singh gave his inputs about proposed formation of exhaustively deliberation on the proposed working model, which may involve strategic partnership as this is a very new approach.

The meeting ended with a vote of thanks to the Chair followed by networking lunch.

After the special meeting to discuss the proposal of setting up of the Cyber Security Centre (e-Raksha Research Centre), a special interaction session between the visiting experts and the students of the GTU PG SCHOOL was arranged.

Dr. Satish Kumar told the students that as the world is changing, exceptional changes and opportunities are coming up. In future, domains of war will be changing. Earlier only land, sea, air and space were used for the war. Now Directed Energy Weapons, Laser Intercept Capability, e-bombs, Electronic Warfare & Robotic warfare will be seen. Future war may be fought by sitting in control rooms and the Robots may fight.

He also gave a brief presentation on techno-managerial challenges in R&D organization as follows:

- About Defence R&D organization (DRDO)
- Corporate structure of DRDO
- Major research areas of DRDO (Missiles & Strategic systems, Aeronautical System, Armament, Combat & Engineering, Naval System & Materials, Electronics & Communication System (ECS), Life Science)
- Technology & security dimensions followed by DRDO
- Technical development challenges
- Advanced materials used by DRDO
- DRDO Scheme for Sponsored Research

He asked many questions to students, “Do you know (1) GOOGLE Inc.- US\$ 60b Company founded through research by Stanford University - Global Internet search solutions, (2) HP - US\$ 112b Company founded through research done by Stanford University & MIT, Sun Microsystem now acquired by Oracle Corporation originated from research of UC Berkeley and Stanford University, (3) Cisco Systems – US\$ 49b Company is the result of Stanford University– multi-protocol router, (4) iRobot–\$ 400 million public company is a result of research by MIT?” If Universities of USA can do it, why we cannot do it in India?

Dr. Akshai Aggarwal, Vice Chancellor of GTU told the students that if IBM can run centres in 160 countries, then why GTU cannot strengthen research base in 500 colleges? We can try to improve our work and our ranking through collaborations. In the event many students of Gujarat Technological University (GTU) Post Graduate School & Faculty Members of GTU participated in the interactive session.

The session of student interaction ended with a vote of thanks.

List of those present for the two sessions:

| Sr. No. | Name | Designation & Organization | |
|---------|------------------------|--|--------------------------------------|
| 1 | Dr. Akshai Aggrawal | Vice Chancellor GTU | GTU |
| 2 | Mr. J. C. Lilani | I/C Registrar GTU | GTU |
| 3 | Dr. Satish Kumar | Distinguished Scientist & Chief Controller R & D (TM) | DRDO, Delhi |
| 4 | Mr. Manish Bhardwaj | Head IT & PR | DRDO, Pune |
| 5 | Lt. Vineet Kumar | Founder Cyber Peace Foundation, Ex-CTO, Jharkhand Police | Advisors of e-Raksha Research Center |
| 6 | Mr. Pavithran Rajan | Advisor, Ministry of Home | |
| 7 | Mr. Shekhar Dutt | Ex. Governor, Chhattisgarh | |
| 8 | Mr. Sanjay Shrivastava | CEO, Cyber Suraksha Kawach | |
| 9 | Dr. S.D. Pradhan | Former Deputy National Security Advisor and Chairman | |
| 10 | Mr. Hemal Patel | MD & CEO, Cyberoam | |
| 11 | Dr. Haresh Bhatt | Mission Director, Information Security Space Applications Centre, ISRO, ISRO | |
| 12 | Mr. Varun Kapoor | IGP, MP | |
| 13 | Colonel B. Prasad | Board Member Cyber Peace Foundation | |
| 14 | Mr. T. P. Singh | Director, BISAG | |
| 15 | Dr. P. K. Shrivastav | Research Advisor, GTU | |
| 16 | Mr. Naresh Jadeja | Deputy Director, GTU | |
| 17 | Mrs. Mona Chaurasiya | Research Coordinator, GTU | |
| 18 | Mr. Bhadreshsinh Gohil | Assistant Professor, GTU | |
| 19 | Mr. Darshan Patel | Assistant Professor, GTU | |
| 20 | Mr. Vagmin Joshi | Assistant Professor, GTU | |
| 21 | Ms. Kinjal Dave | Assistant Professor, GTU | |

Following members were unable to attend meeting owing to pre-occupied work:

| Sr. No. | Name | Designation & Organization | |
|---------|------------------------|--|--------------------------------------|
| 1 | Mr. Aditya Kumar Sinha | Principal Technical Education, CDAC-ACTS | Advisors of e-Raksha Research Center |
| 2 | Mr. S. N. Pradhan | IPS, ADG CID, Jharkhand Police | |
| 3 | Mr. Sanjay Katkar | Managing Director & CTO, Quick heal, India | |

Press Note:

આયોજન - ડીઆરડીઓ દ્વારા જીટીયુમાં સાઈબર સિક્યુરિટી સેન્ટર સ્થાપણે

અમદાવાદ | ડીફેન્સ રીસર્ચ એન્ડ ડેવલપમેન્ટ ઓર્ગેનાઇઝેશન (ડીઆરડીઓ) ગુજરાત ટેકનોલોજીકલ યુનિવર્સિટી સાથે સાઈબર સિક્યુરિટી સેન્ટર એટલે કે ઈ-રક્ષા રીસર્ચ સેન્ટરની સ્થાપના કરવામાં આવશે. આ સેન્ટરમાં પાંચ અલ્ટ્રા-મોડર્ન લેબ્સની પણ સ્થાપના કરવામાં આવશે. ડીઆરડીઓ સમગ્ર દેશમાં 46 લેબ્સ અને 27 હજારનો સ્ટાફ ધરાવે છે એટલે જીટીયુના વિદ્યાર્થીઓને ડીઆરડીઓ સાથે કામ કરવાની મોટી તક મળશે તેવું અધિકારીઓ દ્વારા જાણવા મળ્યું છે.

DRDO, GTU to set up cyber security centre

PRESS TRUST OF INDIA
AHMEDABAD, MAY 3

DEFENCE RESEARCH and Development Organisation (DRDO) in association with Gujarat Technological University (GTU) on Sunday decided to set up a Cyber Security Centre, called as "e-Raksha Research Centre". The announcement was made by Satish Kumar, distinguished scientist and chief controller of research and development, DRDO, stated in a release issued by GTU.

"We have to take care of security dimensions while developing technology. We have to compete with the latest technology. DRDO has 27,000 staff and 46

labs all over the India, which will be great opportunity for students of GTU to work with DRDO," he said. The first such center under the series will be e-Raksha Research Centre at GTU, it said.

GTU Vice-Chancellor Akshai Aggarwal said it is time to develop innovative models and collaborate with other organisations for better results. The proposed centre will have five ultra-modern labs. The purpose of the centre is to provide testing, certification and continuous assessment, GTU's research advisor Pradeep Srivastava was quoted as saying in the release. Former Chhattisgarh Governor Shekhar Dutt, former Deputy National Security Advisor S D Pradhan also attended the meeting.



Speech By honourable Vice Chancellor Dr. Akshai Aggarwal



Speech By Dr. Satish Kumar, DRDO



GTU PG SCHOOL Students



Advisory Board Members & Dignitaries



Advisory Board Members & Dignitaries

Appendix 1: Some of the related activities at GTU:

References of **Internet of Things**:

1. 27th March 2015: Webinar on 'Web Architecture for Internet of Things' by Professor Ravindra Dastikop, Director, Centre for Web Enabled Learning (C-WEL) Assistant Professor, Department of Computer Science and Engineering SDM College of Engineering and Technology, Dharwad: Circular available at http://www.qtu.ac.in/circulars/15Mar/24032015_02.pdf
2. 22nd April 2015: Webinar on 'Internet of Things' by Professor Ravindra Dastikop, Director, Centre for Web Enabled Learning (C-WEL) Assistant Professor, Department of Computer Science and Engineering SDM College of Engineering and Technology, Dharwad: Circular available at http://www.qtu.ac.in/circulars/15Apr/21042015_02.pdf
3. 5th May 2015: Webinar on 'Internet of Things - **Research Directions**' by Professor Ravindra Dastikop, Director, Centre for Web Enabled Learning (C-WEL) Assistant Professor, Department of Computer Science and Engineering SDM College of Engineering and Technology, Dharwad: Circular available at http://www.qtu.ac.in/circulars/15May/04052015_11.pdf
4. 7th May 2015: Webinar on 'An IoT Based Collaboratory As A Research and Educational Platform' by Andrzej Rucinski Professor, Electrical and Computer Engineering University of New Hampshire, Durham, New Hampshire, USA International Society of Service Innovation Professionals, San Jose, California, USA; Circular at http://www.qtu.ac.in/circulars/15May/04052015_13.pdf
5. 26-27 May 2015: 2 Days Workshop on 'Embedded System & Internet Of Things' by Dr. Subramaniam Ganesan, Oakland University, Rochester USA; Circular available at http://www.qtu.ac.in/circulars/15May/13052015_13.pdf

References of **Cyber Security Research Group**:

6. 23rd January 2015: Cyber Security Research Group Meeting; Report available at <http://www.qtu.ac.in/circulars/15Mar/16032015.pdf>
7. 27th March 2015: Cyber Security Research Group Meeting on 'Security Issues In Wireless Networks' by Dr. Vrinda Tokekar Professor & Head, Department of Information Technology Institute of Engineering & Technology Devi Ahilya Vishwavidyalaya, Indore; Report available at <http://www.qtu.ac.in/circulars/15Apr/06042015.pdf>
8. 17th April-2015: Cyber Security Research Group Meeting; Circular available at http://www.qtu.ac.in/circulars/15Apr/13042015_06.pdf

Appendix 2: Three Level Research Structure at GTU:

Post-graduate Research Centres, Research Groups and Boards at GTU

The **Post-graduate Research Centres** work as catalysts for infusing the spirit of innovation and research among the GTU community, through actively involving Faculty Members of Engineering, Architecture, Planning and Management and post-graduate students in research and development. The Centres are supposed to encourage Faculty Members and research students to apply for research grants and establish research laboratories. The Centres are to establish active linkages with the industry and research institutions in India and abroad.

The Centres also aim to become institutional 'public intellectuals' or independent think-tanks to which scholars of the whole world should be invited and where they would like to come to expound their ideas to a receptive, knowledgeable but critical audience.

There are 14 PG Research Centers at GTU.

The Center for Cyber Security, the Center for Mobile Computing and Wireless Technologies, the Center for VLSI Design & Embedded Computing, the Center for Mechatronics and the Center for Industrial Design may be the Post-graduate Centers, which may work with e-Raksha Research Center.

The Research Groups are associated with the Research Centers. Every Group is designed to involve researchers and Faculty Members in all the Colleges in research in a hub-and-spoke model, with the Center working as the coordinating hub. GTU provides all the necessary infrastructural support in addition to organizing Seminars, Workshops and Expert Lectures, in the areas of interest to the Research Groups. The Research Groups provide an opportunity to the researchers and Faculty Members in the Colleges to grow themselves and to develop the profile of their respective Departments and Colleges by taking advantage of the facilities and activities of the Post-graduate Research Centres.

There are 16 Research Groups at GTU.

The Research groups in Cyber Security, Mobile Computing & Wireless Technology, Robotics Embedded Computing, Robotics Design and Networking and Communication may work with e-Raksha Research Center.

The **Boards of Research & Development** are for involving the Faculty Members and research students with the whole of the society.

There are 5 Boards at GTU.

e-Raksha Research Centre is one of the five Research Boards, established by GTU. The Board for Mobile Computing and Wireless Technologies may work with **e-Raksha Research Center**.