

DivyaSree



e-Newsletter

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Department of Electronics & Communication Engg. Reva ITM, Bangalore-64

ABOUT THE INSTITUTE

Reva Institute of Technology and Management (Reva ITM) was founded under the aegis of Rukmini Educational Charitable Trust as the educational venture of a leading group, Divyasree Developers in Bangalore. The institution is affiliated to VTU, Belgaum and is approved by AICTE, New Delhi. The institution is located on Devanahalli International Airport road, at a distance of about 22km from central bus stand and railway station. It has a sprawling campus of 35 acres with greenery, which involves main college building, hostel and staff quarters. Reva ITM provides world class education, foster Research and Development, evolve innovative application of Technology, encourage entrepreneurship and ultimately mould young people into professionals capable of assuming leadership of the society for the betterment of the country.



*Sri P. Shyama Raju
Chairman, Reva group
of educational institu-
tions*



*Dr. R.P. Reddy
Principal*



*Mr. M. Dhananjaya
Dean, Student Welfare
Department*



*Dr. S. S. Manvi
HOD, ECE
Dean, R&D*

ABOUT DEPARTMENT OF ECE

The department of ECE offers the following programmes: Undergraduate with 120 intake, Post graduate (M.Tech in VLSI and Embedded systems), both part time and full time and Ph.D. The department is equipped with well developed laboratories and class rooms. The faculty members are involved in research activities in different fields such as Wireless networks, DSP and VLSI Design. The co-members of the faculty have rich academic experience and wide industrial and R&D exposure and are well suited for minimising the gap between academy and industry.

VISION & MISSION OF THE DEPARTMENT

*To prepare the youth of the universe to have a blend of technological excellence in Electronic Communications and human values to meet the ever emerging challenges of technical arena in the world. To produce an engineers having good knowledge of Electronics and Communication Engineering, ethical practices, automation design and innovation skills and entrepreneurship abilities. This will be achieved through following: state of art infrastructure, constant knowledge up gradation of faculty, quality policies, student and society need centric teaching and learning, and imparting value addition skills.

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SPILL THE BEANS

EDITORIAL

GUEST EDITOR

I am extremely happy to note that department of ECE is releasing its second edition of department Newsletter "e-UDANTAKA". The Faculty, Staff and Students of Electronics and Communication Engineering department deserve rich appreciation for this effort.

The REVA ITM has a proud tradition of Academic, Cultural and Sporting Excellence. The accomplishment achieved by the department of ECE in R&D Activities, Teaching-Learning process and in conducting Personality development activities reflects their commitment to quality education.

The last decade has clearly shown that Science and Technology can create Products and Services which can impact even the poorest community. Incidentally, these changes demonstrate the vision of our first Prime Minister, Pandit Jawaharlal Nehru, who five decades ago was convinced of Key role Science and Technology was destined to play to find solution for our poor in this large diverse country.

I have great confidence that ECE students of RITM will act as a catalyst in the growth of quality technical education in the country. I wish all of you success in your endeavours.

Dr. R.P. Reddy
Principal

CHIEF EDITOR

It is remarkable to note some of top 11 technologies of the decade that occurred in the recent issue of IEEE spectrum . The technologies are Smart phone, Drone aircraft, Mars rover, Social network, LED lighting, Multicore CPOS, Cloud computing, Flexible AC transmission , VOIP, Digital photographs, Class-D audio. Looking at the trends in development of Electronics & IT, days are not far off where computers will be invisible elements in our daily lives. The department is making an attempt to bring all developments in the area of IC T to the doors of students and faculty in various forms.

Dr. Sunilkumar. S. Manvi

National & International Conferences

1. R. C. Biradar, S. S. Manvi, "A Reliable Bandwidth Delay Product Based Multicast Routing Scheme in MANET", International conference on communication, networking and computing (CNC), Calicut, India, Oct. 2010 (Accepted)
2. J. D. Mallapur, Remka Ambiger, S. S. Manvi, "QoS based scheduler in wireless multimedia networks: A fuzzy approach", International conference on wireless networks, World Congress in Advances in Computer Engineering, Las Vegas, USA, July 2010.
3. M. N. Birje, S. S. Manvi, "Monitoring and Status Representation of Devices in Wireless Grids", IEEE Conference on Grid and Pervasive Computing, Taipei, Taiwan, May 10-14 2010
4. R. C. Biradar, S. S. Manvi, "Choosing neighbour nodes based on mobility and channel conditions for routing in MANETs", International Conference on Advances in Computer Engineering, Bangalore, India, June 20-21 2010
6. K.M.Rudrappa, C.Puttamadappa, Venkatesh Prasad.K.S, "Implementation of Powerpc based Soc" RTCSP 2010 Amrita University, Coimbatore, Tamil Naidu, March 2010, Processing.
7. Akkamahadevi.D.H, Narasimha Kanlgud, JPEG Like Orthogonal Based Wavelets Video Compression Using Error Free Coding Techniques, International Conference on Cognition & recognition, pp 910 to 914 Mysore.

OF LIVE WIRES AND DIODES

WORKSHOPS CONDUCTED

- A workshop on VLSI Design Verification was organized on 29th & 30th of July, 2010. Mr. Paul Kaunds addressed the gathering. The technical sessions were preeced by Mr. Ramesh Doddamani, Mr. Lalith Sitaram, Mr. Ramesh Jagannath of Phlox VLSI Academy & Dr. H.C. Sreenivasaiah, professor, DCSE, Bangalore.
- Annual Sports day was celebrated on 14th October 2010. ECE students actively involved in this celebration and maximum no of students have participated in various events conducted at the interdepartmental level. Our department has bagged the overall championship trophy.
- A talk by Mr. Richard. M. Stallman founder of Free Software Movement and GNU/ Linux Operating System was organized on 8th September 2010. Karnatic Style Classical music was arranged to entertain Mr. Richard.
- A 3-Day Workshop on Soc Design & PSoC Programming was organized on 26th July, 2010. It was conducted in association with Cypress Semiconductors pvt Ltd, Sponsored by VTU, Belagaum. Chief guest Mr. P.L. Narayana, Senior design Engineer, Director Cypress Semiconductors and Mr. Karthik Mahalingam, Manager, Cypress University Alliance Program in India addressed the gathering. Resource persons Mr. Guttal,

Mr. Lalith and Mr. Rajesh, senior executives of Cypress India Ltd, were also present.

- A talk on "Orthogonal Frequency Division Multiplexing" was organized by the FORCE committee on 07-08-2010. Dr. Raghunath, HOD, ECE, PESIT was the Guest speaker.
- A talk on "Careers in VLSI" was organized by the FORCE committee on 14-08-2010. Mr. Arvind, ARM (Advanced Risc Machine) was the guest speaker.
- A talk on "Pathway to Networking Career" was organized by the FORCE committee on 14-08-2010 at 1.30 pm. Mr. Ameet Gogi, Business head of INTER NETWORKZ was the guest speaker.
- A 3 day faculty development programme was organised on WIMAX & LTE, from 11th-13th August 2010. Dr. Jitendra. R. Rao, professor Emeritus, R & D guidance, MSRIT, Bangalore, was the chief guest of the function. The Resource persons of the workshop were Mr. Prem Kumar, NexGen mobile technologies, Mr. Girish, NexGen mobile technologies, Dr. S.S. Manvi, HOD, ECE, Dr. Vijaykumar, HOD, CSE.
- Workshop on CMOS RF Design 5th & 6th August 2010.
- Workshop on Labview, 22nd & 23rd Sep 2010. Visweswaran. J, Academic Technical Consultant, National Instruments, Bangalore.

TOGETHER WE GROW STUDENT'S ACHIEVEMENTS

Ms. Kavya Shree of 4th sem EEE participated in VTU basketball tournament held at SDMCE, Dharwad in the year 2010. Our students are actively participating in all curricular, co-curricular and extra-curricular activities in the college. Also presented technical papers in Revamp-10 and in other coll.

Paper Presentation

Srividya and Varsha. G.S presented a paper on Blind detection of malicious alternations on still images using robust watermarks in Channabasaveshwara institute of technology, Gubbi in october 2009.



Workshop on WIMAX & LTE, 11th-13th August 2010: Dignitaries on the dias: (L to R) Dr.S.S.Manvi,HOD,ECE, Dr.Jitendra.R.RaoI, Prof Emeritus (R &D),MSRIT,Bangalore,Dr.R.P.Reddy,Principal, REVA ITM,Prof.Basarkod,workshop coordinator.

Workshop on CMOS RF Design 5th & 6th August 2010: Dignitaries on the dias: Dr.S.S.Manvi, HOD, ECE; Dr.R.P.Reddy, Principal; Dr.RamakrishnaHirisave, Chief Guest; Dr.Gaurab Banerjee, Guest of Honor



Workshop on Labview, 22nd & 23rd Sep 2010: Dignitaries on the dias: Dr.S.S.Manvi, HOD, ECE; Dr.R.P.Reddy, Principal, REVA ITM; Visweswaran J, Academic Technical Consultant, National Instruments, Bangalore. Workshop

PG Orientation program, 25th Sep 2010:Dignitaries on the dias:Dr.R.P.Reddy,Principal,REVA ITM,Dr.S.S.ManviHOD,ECE.



Dignitaries on the dias:Dr.S.S.Manvi,Dr.B.P.Vijaykumar,Mr.Ajinkya Pinto,Wipro, Dr. R.P. Reddy,Prof.P.I. Basarkod & Mr.Adil Usman-on the inauguration ieee student branch 24-04-2010

Ring Presentation Ceremony
9.6.2010:Ms.Miriam.D.William of VIII sem ECE, awarded the golden ring for the Best outgoing Student of REVA ITM for the year 2010.



Blood donation camp organised by the students of ECE



ECE students with the sports overall championship trophy

The Principal and ECE HOD of RITM with Mr. Richard in the campus.



Dignitaries on the Dias Mr.Richard M. Stallman, Dr. S.S. Manvi, Dr.R.P.Reddy

Public talk by Richard M. Stallman on "GNU MOVEMENT" on 8th September



Workshop on Simulation of computer nett works using NSE simulator: dignitaries on dias Sri.M. Dhanamjaya, Dr. R.P. Reddy, Dr. Vinod Sharma,Dr.S.S. Manvi, Mrs. Nayana. D.K

4G Mobile technology – The mobile race to innovate

Future wireless mobile communications will be shifted from today's traditional transmission-specific radio technology to an interface-based technology in order to be more compatible with computer system architecture. The future mobile device will therefore be first and foremost a computer, then an open wireless architecture (OWA) low-power terminal. This OWA technology offers an optimal solution to open up the wireless platform for complete openness and simplicity and would support the service-oriented architecture and infrastructure that is necessary for future mobile phone development and advancement.

The first mobile phone was invented in the United States back in the 1960s by Bell Labs, but the US mobile communications market has remained very much closed and far behind the international movement towards the open market of the global industry. Now the world is evolving rapidly into a personal communications era with true openness and freedom in mobile services, but in our opinion, the US is still lagging about ten years behind other countries, such as China, with regards to having a more open and competitive market in wireless communications.

Though different regions have diversified approaches towards the next generation mobile communication technology (called 4th generation mobile, or 4G Mobile), the future trend is same: Convergence among fixed, mobile and wireless communications. No single wireless radio transmission technology (RTT) can do both broadband high-speed data-rate and seamless mobility, and therefore we need multiple RTTs to complement each other in any optimal way to ensure the information is delivered to the mobile user in a more cost-effective way and in a more spectrum-efficient way.

The mobile communications comprise two steps: access to the mobile network, and access to the mobile services. Traditionally, these two steps are all controlled by one operator in a closed and proprietary way. In the 4G mobile era, the access to the mobile services will be evolved to an open Mobile Cloud so that it is fully open to any developers and providers. In this way, any non-wireless industries, such as Google, Microsoft, Oracle, SAP, GM, Bank of America can provide services for their mobile users. The access to the mobile network is still controlled by the traditional wireless operators such as AT&T, Verizon, T-Mobile and China Mobile. Of course, the operators are very reluctant to go this trend, but for the mobile users and for the future global movement, it is just a matter of time to do it.

The mobile device system architecture will be open in order to converge multiple RTTs (radio transmission technologies) in one same device. Same as laptop computer, the future Smartphone will be based on open wireless architecture (OWA) technology which means, when you change the wireless standards, you do not need to change phone. It is totally different from current multi-standards phone which is in closed system architecture, and users can not remove the unused RTT modules and basically can not do anything on the mobile phone system. In the OWA system, you can just change RTT card in your Smartphone to switch your wireless standards, or you can integrate multiple wireless standards in one RTT SIM card. Based on this OWA platform, you can integrate home phone, office phone and mobile phone into one common Personal device - it is more beyond just a phone. In fact, this 4G mobile device is a system to bring the world to your hand, or we call it iHand - the World in Hand, which is more better than calling it an

Any portable consumer electronics device can be a mobile phone by inserting the OWA-powered mobile RTT(s) card. This approach is truly converging the mobile wireless technology with the computer technology by providing the OWA virtualization layer between the high-layer computer-based OS (operating systems) & applications solutions and the underlying wireless transmission-based different mobile networks access means.

More breakthrough technologies are being developed for efficient utilization of wireless spectrum, and the dynamic and open spectrum management. Wireless is totally different from wired communications, and therefore the overall performance relies on both system performance and transmission performance where spectrum is one of the key issues.

AirPod – Car Runs On Air

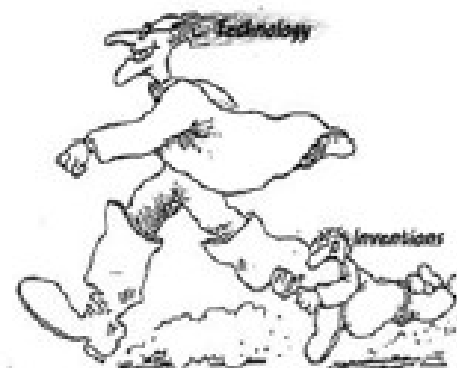
In the past hour, worldwide consumption of petroleum exceeded 100 million gallons. In the United States, there are 300,000 miles of pipeline, 170,000 gas stations and 243 million vehicles using petroleum fuels. Guy Nègre, a former aeronautics and formula one engineer is hoping to change all that. He has invented a compressed air technology for cars. Nègre is the founder and CEO of Motor Development International (MDI SA) based in Luxembourg, with research and development facilities in Nice, France.

The AirPod is a small four-wheel mini-car that uses compressed air to move pistons in a 5.45 hp internal combustion engine. It has a range of 60 miles on a single tank of air and uses a small motor to compress outside air to keep the tank full. The compressor can operate on gasoline, diesel, biodiesel, ethanol or vegetable oil, but can also be plugged into an electrical outlet for recharging. With regular gasoline fueling the compressor, the Airpod averages an amazing 106 mpg with a range of 800 miles. With the demand for inexpensive, user friendly, ultra high mileage vehicles that have zero emissions related to global warming – the Airpod is getting a lot of attention. Air France and KLM airlines are using AirPods to transport passengers between arrival and departure gates at airports in Paris and Amsterdam. Automaker, Tata Motors has purchased the manufacturing rights for India. Zero Pollution Motors has purchased the rights for the U.S. market and beginning in 2011 expect to manufacture 8,000 vehicles a year in the United States.

- **"We can't solve problems by using the same kind of thinking we used when we created them."
-ALBERT EINSTEIN**

Instant Prints

Creating instant prints from a digital camera is one of the new electronic inventions in printing. The Polaroid PoGo™ is a small portable printer that weighs only a few ounces. The printer produces full color 2" x 3" prints using an inkless technology. The images are created from heat activated crystals in the photo paper. The photos are water proof, tear proof and smudge proof. This new electronic invention connects to a digital camera using a USB cable, or to a mobile phone through wireless Bluetooth. It uses rechargeable batteries or an AC adapter.



GSAT-5P

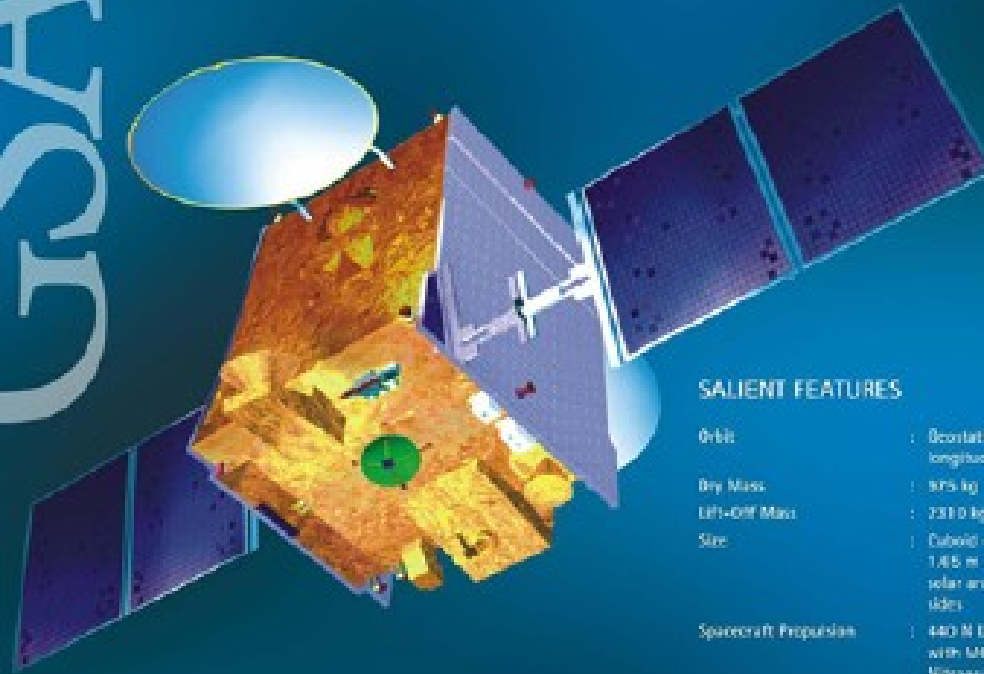
GSAT-5P is the fifth satellite to be launched in the GSAT series. It is an exclusive communication satellite to further augment the communication services currently provided by the Indian National Satellite (INSAT) System. Weighing 2310 kg at lift-off, GSAT-5P carries 24 Normal C-band and 12 Extended C-band transponders.

GSAT-5P will be launched from Satish Dhawan Space Centre SHAR, Sriharikota by the seventh flight of India's Geosynchronous Satellite Launch Vehicle (GSLV-F06) into a Geosynchronous Transfer Orbit (GTO) with a perigee of 170 km and an apogee of 35,975 km inclined at an angle of 19.3 deg to the equator. The satellite then manoeuvred to its final circular 35,600 km high Geostationary Orbit by repeatedly firing the Liquid Apogee Motor (LAM) on board the satellite. GSAT-5P will be stationed at 55 deg East longitude.

Commissioned in 1983, INSAT is the largest domestic communication satellite system in the Asia-Pacific region. At present, it has nine satellites – INSAT-2E, INSAT-3A, INSAT-3C, INSAT-3E, KALPANA-1, GSAT-2, INSAT-4A, INSAT-4B and INSAT-4CR – providing Telecommunications, TV broadcasting, Meteorological Imaging, Disaster Warning and Satellite-aided Search and Rescue services. INSAT system provides about 178 transponders in S-band, C-band, extended C-band and Ku-band.

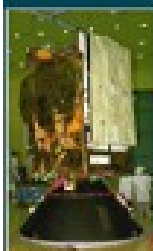


Disassembled view of GSAT-5P

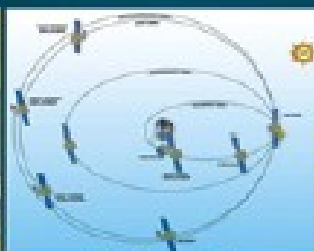


SALIENT FEATURES

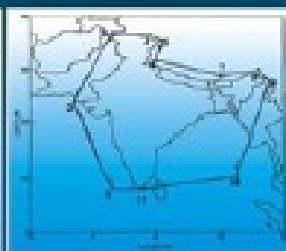
- Orbit** : Geostationary (55 deg East longitude)
- Dry Mass** : 975 kg
- Lift-off Mass** : 2310 kg
- Size** : Cuboid of dimensions 1.65 m x 1.53 m x 2.99 m with solar arrays on North and South sides.
- Spacecraft Propulsion** : 480 N Liquid Apogee Motor with MON-3 (Mixed Oxides of Nitrogen) and MMH (Mono Methyl Hydrazine) for orbit raising.
- Stabilisation** : 3-axis body stabilised in orbit using Sun and Earth sensors, Gyroscopes, momentum and reaction wheels, magnetic torquers and eight 10 Newton and eight 22 Newton Reaction Control Thrusters.
- Power** : Solar array generating 2600 W, Two 64 Ah Lithium-Ion batteries to support full payload operation during eclipse period.
- Mission Life** : 15.7 years



GSAT-5P being hoisted during a pre-launch test



GSAT-5P Mission Profile



Partial Coverage Footprint

COMMUNICATION PAYLOAD

- 24 Normal C-band transponders having India beam coverage, providing an Edge of Coverage-Effective Isotropic Radiated Power (EOC-EIRP) of 27 dBW
- 12 Extended C-band transponders having India beam coverage, providing an EOC-EIRP of 30 dBW



TOPPERS

IV SEM

ARYASHREE(90.4%)

R.SUDHARSHAN(85%)

SUSHMITA S(82.9%)

DEVI D(82.2%)

VINAY G H(81 %)

VI SEM

RANJANI R(80.3%)

KRITHIKA R(79.4%)

SEEMA S(77.6%)

AMAR B(77%)

KRISHNA CHAITANYA G(75.8%)

VIII SEM

DEEPAK K B(87.2%)

SUNIL K H(86.6%)

DEEPA B M(86%)

KANCHANA D R(86%)

BIOGRAPHY OF ALBERT EINSTEIN

Albert Einstein was born at Ulm, in Württemberg, Germany, on March 14, 1879. Six weeks later the family moved to Munich, where he later on began his schooling at the Luitpold Gymnasium. Later, they moved to Italy and Albert continued his education at Aarau, Switzerland and in 1896 he entered the Swiss Federal Polytechnic School in Zurich to be trained as a teacher in physics and mathematics. In 1901, the year he gained his diploma, he acquired Swiss citizenship and, as he was unable to find a teaching post, he accepted a position as technical assistant in the Swiss Patent Office. In 1905 he obtained his doctor's degree.

During his stay at the Patent Office, and in his spare time, he produced much of his remarkable work and in 1908 he was appointed Privatdozent in Berne. In 1909 he became Professor Extraordinary at Zurich, in 1911 Professor of Theoretical Physics at Prague, returning to Zurich in the following year to fill a similar post. In 1914 he was appointed Director of the Kaiser Wilhelm Physical Institute and Professor in the University of Berlin.

After World War II, Einstein was a leading figure in the World Government Movement, he was offered the Presidency of the State of Israel, which he declined, and he collaborated with Dr. Chaim Weizmann in establishing the Hebrew University of Jerusalem.

At the start of his scientific work, Einstein realized the inadequacies of Newtonian mechanics and his special theory of relativity stemmed from an attempt to reconcile the laws of mechanics with the laws of the electromagnetic field. He dealt with classical problems of statistical mechanics and problems in which they were merged with quantum theory: this led to an explanation of the Brownian movement of molecules. He investigated the thermal properties of light with a low radiation density and his observations laid the foundation of the photon theory of light.

In his early days in Berlin, Einstein postulated that the correct interpretation of the special theory of relativity must also furnish a theory of gravitation and in 1916 he published his paper on the general theory of relativity. During this time he also contributed to the problems of the theory of radiation and statistical mechanics.

In the 1920's, Einstein embarked on the construction of unified field theories, although he continued to work on the probabilistic interpretation of quantum theory, and he persevered with this work in America. He contributed to statistical mechanics by his development of the quantum theory of a monatomic gas and he has also accomplished valuable work in connection with atomic transition probabilities and relativistic cosmology.

Einstein's researches are, of course, well chronicled and his more important works include *Special Theory of Relativity* (1905), *Relativity* (English translations, 1920 and 1950), *General Theory of Relativity* (1916), *Investigations on Theory of Brownian Movement* (1926), and *The Evolution of Physics* (1938). Among his non-scientific works, *About Zionism* (1930), *Why War?* (1933), *My Philosophy* (1934), and *Out of My Later Years* (1950) are perhaps the most important.

Albert Einstein received honorary doctorate degrees in science, medicine and philosophy from many European and American universities. During the 1920's he lectured in Europe, America



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