SARANATHAN COLLEGE OF ENGINEERING

PANJAPPUR, TRICHY.

DEPARTMENT OF

ELECTRONICS AND COMMUNICATION

PROUDLY PRESENTS

WIZARDZZ 2K17-MARCH

FROM THE HOD'S DESK

I am very happy that our ECE department is releasing our magazine named WIZARDZZ V.10 for the even semester of 2016-2017.This e-magazine is a channel to prove the hidden talents of both faculty members and students in the technical aspects as well as in literature. Our department aims to keep the students updated of the latest technologies. I hope this e-magazine would be a platform for faculties and students to express their creative ideas.

Finally I congratulate the editorial team for their hard work and dedication that has resulted in publication of this issue of e-magazine.

Dr.M.Santhi

HOD/ECE

Our Vision

To become a leading department of Higher Learning and a Research Center of Excellence in Electronics and Communication Engineering.

Our Mission :-

- ✓ To enable budding engineers to obtain technical exposure in various areas of Electronics and Communication Engineering.
- ✓ To nurture career improvement
- ✓ To initiate and sustain research activities in the department in cutting edge areas of Electronics and Communication Engineering
- ✓ To develop professional and ethical attitude in the students.

PROGRAMME EDUCATIONAL OBJECTIVES

The Graduates of Electronics and Communication Engineering will

- **have a strong foundation in the required sciences in order to pursue studies in Electronics and Communication Engineering.**
- **have a broad exposure to the students in various topics related to Electronics and Communication Engineering fields, to enable them to excel in their professional career/higher studies.**
- **possess innovative skills in order to solve the technical problems which will arise in their professional life.**
- **have professional and ethical attitude and an ability to visualize the engineering issues in a broader social context.**

PROGRAMME OUTCOMES

Engineering Graduates will be able to:

- **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
- **Problem analysis:** Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- **Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
- **Conduct investigations of complex problems:** Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
- **Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
- **The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

- **Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of and need for sustainable development.

- **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

- **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

- **Communication:** Communicate effectively on complex engineering activities with the **engineering** community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

- **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

- **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES

Graduates of Electronics and Communication Engineering will be able to:

- Comprehend and demonstrate the principles and concepts of Semiconductor theory, Signal Processing & Embedded systems in the fields of Consumer Electronics, Medical Electronics and Defense Electronics

- Apply emerging Information and Communication Engineering Techniques to solve real time problems

PUBLICATIONS OF OUR FACULTY

- Dr. M.Santhi, B.Dhivyabharathi, Text Extraction from Degraded Historical Document Images, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- Dr. C.Vennila, M.Minu Priya, An Efficient Algorithm for Throughput Maximization and Delay Minimization in Cognitive Radio Wireless Mesh Network, , 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- Dr. M.Padmaa, A.Ezhilarasi, Markov Model Based Face Photo-Sketch Synthesis, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- Dr.M.Padmaa & D.Tharani " Spread Spectrum Image Watermarking in Wavelet Domain" Asian Journal of Research in Social Sciences and Humanities Vol. 7, No. 1, January 2017, pp. 472-482.

- Dr. S.Rajeswari, R.Alagupreetha, Interference Reduced Channel Assignment And Routing Algorithm for Energy Harvesting MultiRadio Wireless Mesh Network, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- Dr.SA.Arunmozhi , Priyadharshini, " Blackhole Attack Detection using Modified AODV Protocol", International Conference on Innovations in Engineering, Technology and Science, Feb. 2017.
- Dr. SA.Arunmozhi, C.Priyadharshini, Performance Improvement of MANET against Block Hole Attack, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- Dr. V.Mohan, P.Maheswari, Performance Analysis of Inter Conversion Matrices in Heterogeneous Image Transcoding, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.

- Dr. P.Shanmugapriya, P.Jency Leena, Residue Coding By Mode Dependent Fuzzy Vector Quantization in HEVC, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- S.Hariprasath, T.K.Santhosh, Artifact Removal via Image Decomposition for Biomedical Images, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- V.Kavitha, R.Rathika, Neighbor Aided Compressive Data Gathering in Wireless Sensor Networks, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.
- J.Eindhumathy, M.Anthuvan Lydia, V.Ramya, Analysis of Radix 2^4 SDF Pipeline FFT architecture, IJTIMES- e-ISSN: 2455-2584, Volume 3, Issue 3, March-2017.
- K.Malaisamy, B.Venba, Modified Cross Dipole Antenna for Ku-Band Satellite Applications, 1st International Conference On Newer Engineering Concepts And Technology, March 2017.

Achievements

Happiness lies
in the joy of achievement
and the thrill
of creative effort.

Franklin Delano Roosevelt

S.NO	NAME	YEAR	ACHIEVEMENTS
1.	S.YASASWENE	THIRD	1.1ST Prize in Paper Presentation at Care College of Engineering. 2..1ST Prize in carnatic vocal at SARAL2K17. 3.Participated in carnatic vocal at NIT TRICHY.
2.	A.SOWBAKIYA	THIRD	Participated in paper presentation at Care College of Engineering.
3.	SALAI GAYATHRI	THIRD	1ST Prize in Paper Presentation at Care College of Engineering.
4.	M.VINODHINI	THIRD	1. 2nd prize in javelin throw and 1st prize in kho-kho at Saranathan College of Engineering. 2.Participated in paper presentation at K.Ramakrishana College of Engineering . 3.Attended workshop on VHDL in Saranathan College of Engineering. 4.Attended Inplant training in HAPP

7.	**V.SIVARANJANI**	**THIRD**	**Attended workshop on VHDL in Saranathan college of engineering.**
8.	R.G.PONMOZHI	THIRD	Attended workshop on VHDL in Saranathan College of Engineering.
9.	S.SHARANYA	THIRD	Attended workshop on VHDL in Saranathan College of Engineering.
10.	R.PARIMALA	THIRD	Attended workshop on VHDL in Saranathan College of Engineering.
11.	B.SANGEETHA	THIRD	1.Attended workshop on VHDL in Saranathan college of engineering. 2.Participated in cipper-cross and ex-quiz me at K . Ramakrishna College of Engineering.
12.	M.SANGAVI	THIRD	1.Attended workshop on VHDL in Saranathan college of engineering. 2.Participated in Tech-to-date, cipper-cross and ex-quiz me at K . Ramakrishna College of Engineering.

13.	**M.NOOR FAHMITHA**	**THIRD**	**1.Attended workshop on VHDL in Saranathan college of engineering. 2.Participated in Tech-to-date, cipper-cross and ex-quiz me at K . Ramakrishna college of engineering**
14.	N.PAVITHRA	THIRD	1.1ST Prize in technical quiz and technical connection at K.Ramakrishna College of Engineering . 2.Participated in paper presentation at K.Ramakrishana College of Engineering . 3.Participated in paper presentation at Kumaragura College of Engineering 4.Attended workshop on VHDL in Saranathan College of Engineering.
15.	R.SRINITHI	THIRD	1.1ST Prize in technical quiz and technical connection at K.Ramakrishna College of Engineering . 2.Participated in paper presentation at K.Ramakrishana College of Engineering . 3.Attended workshop on VHDL in Saranathan College of Engineering.
16.	KR.SHANTHIPRIYA	THIRD	Attended workshop in printed circuit

19.	**VASIM HASINA.S**	**THIRD**	**1.1st prize in paper presentation at SCE(ELCOMFEST). 2.Attended work shop in NIT Trichy . (embedded systems) 3.Attended workshop on VHDL in Saranathan College of Engineering.**
20.	S.PRIYADHARSHINI	THIRD	1.1st prize in paper presentation at SCE(ELCOMFEST). 2.Attended work shop in NIT Trichy . (embedded systems) 3.Attended workshop on VHDL in Saranathan College of Engineering.
21.	S.SRIAKILANDESWARI	THIRD	Participated in paper presentation at Care Group of Institution.
22.	M.PEPITHA	THIRD	Participated in paper presentation at Care Group of Institution.
23.	S.SAHANA	THIRD	1.Attended workshop on VHDL in Saranathan College of Engineering.

25.	**M.SHAILAJA**	**THIRD**	**1.Attended workshop on VHDL in Saranathan College of Engineering. 2.Participated in mini project(AUTOMATIC ENGINE LOCKING SYSTEM FOR DRUKEN DRIVERS) at SCE. 4.Participated in project expo at SCE.(EFFICIENCY) 5.Participated in EX-QUIZ-ME and CIPPER CROSS at K.Ramakrishna college of Engineering.**
26.	D.SASIREKA	THIRD	1.Attended workshop on VHDL in Saranathan College of Engineering. 2.Participated in mini project(AUTOMATIC ENGINE LOCKING SYSTEM FOR DRUKEN DRIVERS) at SCE. 4.Participated in project expo at SCE.(EFFICIENCY) 5.Participated in PAPER PRESENTATION and technical quiz at K.Ramakrishna college of Engineering. 6.Attended workshop on hacking.

31.	**BINDIYA.M**	**THIRD**	**2nd prize in paper presentation at SCE(ELCOMFEST).**
32.	DEEPTHI.E	THIRD	2nd prize in paper presentation at SCE(ELCOMFEST).
33.	AFRIN SULTHANA.A	THIRD	1ST Prize in circuit debugging at J.J. college of Engineering.
34.	DIANA EVANGELINE.L	THIRD	1ST Prize in circuit debugging at J.J. college of Engineering.
35.	NANDHINI.B	THIRD	2ND Prize in project expo at Indra ganesan college of engineering.
36.	SATHYA.R	THIRD	1.2ND Prize in project expo at Indra ganesan college of engineering. 2.2nd prize in Adzap at K.Ramakrishna college of Engineering .

37.	**SHILPA.S**	**THIRD**	**1ST Prize in circuit debugging at K.Ramakrishna college of Engineering .**
38.	F.FENIL SPRILLIA	THIRD	2nd prize in Adzap at K.Ramakrishna college of Engineering .
39.	R.KAVITHA	THIRD	1ST Prize in project exhibition at Anna university trichy.
40.	M.ELAKKIYA	THIRD	1ST Prize in project exhibition at Anna university trichy.
41.	S.KAOVYA SAI SRI	THIRD	1ST Prize in project exhibition at Anna university trichy.
42.	AAYISHA SIDDHIKA	THIRD	1ST Prize in project exhibition at Anna university trichy.

43.	**J.BALAJI**	**THIRD**	**1ST Prize in project exhibition at Anna university trichy.**
44.	G.KRISHNA KUMAR	THIRD	1.1ST Prize in electropuzz at care college of engineering. 2.2nd prize in tech debate at care college of engineering.
45.	K.VADIVEL	THIRD	1.1st prize in circuit debugging at indra ganesan college of engineering. 2.1st prize in circuit debugging at K.Ramakrishna college of Engineering . 3.1ST Prize in electropuzz at care college of engineering. 4.2nd prize in project expo at indra ganesan college of engineering. 5.2nd prize in tech debate at care college of engineering.
46.	L.NAVEEN	THIRD	1.2nd prize in project expo at care college of engineering. 2.1st prize in robo race at care college of engineering.
47.	T.MUKESHRAJ	THIRD	1.2nd prize in project expo at care college

49.	**RAGURAAM.S**	**SECOND**	**1.MR.ELECTRONICS(ELCOMFEST).** **2.1st Prize in mini project at SCE.**
50.	MONISHA SHREE.S	SECOND	1.1st Prize in mini project at SCE. 2.2nd prize in paper presentation. (ELCOMFEST)
51.	T.PRIYANKA	SECOND	1st Prize in mini project at SCE.
52.	S.VARSHINI	SECOND	1st Prize in mini project at SCE.
53.	S.NANDA KUMAR	SECOND	1st Prize in mini project at SCE.
54.	M.SURYA	SECOND	2nd Prize in circuit debugging (ELCOMFEST)

55.	M.PREETHI	THIRD	2nd Prize in circuit debugging (ELCOMFEST)
56.	K.SUGASINI	SECOND	MS.ELECTRONZA(ELCOMFEST).
57.	K.POORNA PRIYA	SECOND	3rdrize in mini project at SCE.
58.	M.SHYLA BANU	SECOND	3rdrize in mini project at SCE.
59.	G.PREETHI	SECOND	3rdrize in mini project at SCE.
60.	PC.NIRANJANI	SECOND	3rdrize in mini project at SCE.

61.	VAISHNAVI.G	THIRD	2ND Prize in mini project at SCE.
62.	VIJAYABHARATHI.D	SECOND	2ND Prize in mini project at SCE.
63.	SHANMATHI.M	SECOND	2ND Prize in mini project at SCE.
64.	PRIYADHARSHINI.S	SECOND	2ND Prize in mini project at SCE.
65.	EJAZ HUSSIAN	SECOND	2ND Prize in word play at SCE.
66.	DOMINIC	SECOND	2ND Prize in word play at SCE.

67.	KEERTHANA.G	SECOND	2ND Prize in word play at SCE.
68.	INFENCE FRANKA.J	SECOND	1ST Prize in word play at SCE.
68.	ADHISAYA.A	SECOND	1ST Prize in circuit debugging at SCE .
69.	BHARATHAN.S	SECOND	1ST Prize in Paper presentation at SCE .
70.	BHARATHI RAJA.T	SECOND	1ST Prize in Paper presentation at SCE .
71.	KAMILA.N	SECOND	2nd prize in quiz at SCE.

72.	ASWINI.D	SECOND	2nd Prize in word play at SCE.
73.	INFENT ANTO	SECOND	2nd prize in quiz at SCE.
74.	M.DHIVYA	SECOND	Participated in circuit debugging AND Paper presentation at SCE.
75.	C.DHIVYA SHREE	SECOND	Participated Paper presentation at SCE.
76.	C.SINDHUJA	SECOND	1ST prize in quiz (ELCOMFEST)
77.	R.RIZWANA BATCHA	SECOND	1ST prize in quiz (ELCOMFEST)

78.	K.SELVARANI	SECOND	3RD Prize in dance competition.
79.	K.BHUVANESWARI	SECOND	Participated in paper presentation and circuit debugging (ELCOMFEST).
80.	M.R.ARCHANA	SECOND	Participated in paper presentation(ELCOMFEST).
81.	T.DEEPIKA	SECOND	Runner up in ball badminton and basket ball at Anna university zonal
82.	R.CHARU NIVETHA	SECOND	1.1st prize in triple jump , long jump,100m,200m,basket ball , kho - kho , volley ball and individual championship. 2.2nd prize in long jump in trichy district athletic meet. 3.1st place in triple jump , and 2nd place in long jump at anna university zonal meet.

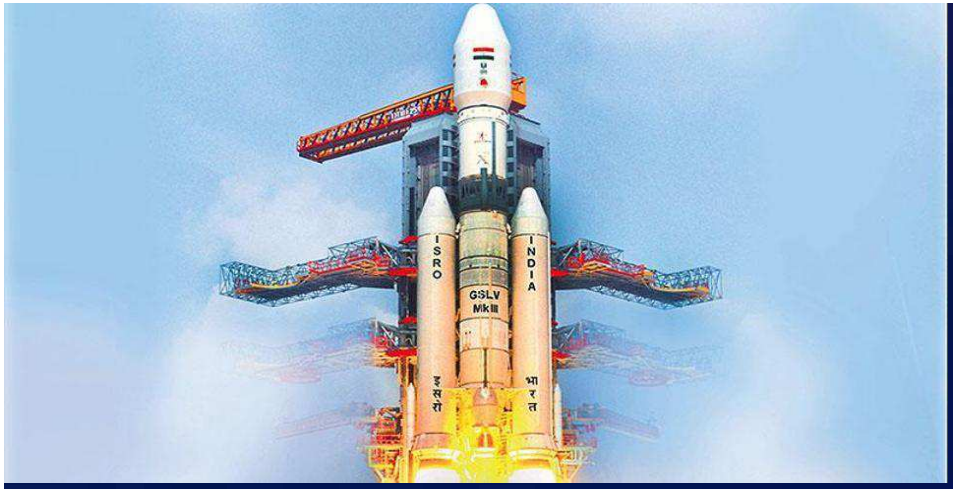
84.	**S.EASWARA PRASATH**	**THIRD**	**Winner up in cricket match (ll- division) and runner up in football and basketball zonal.**
85.	G.ANAND RAVISEKAR	THIRD	1ST prize in chess at SCE and 2ND Prize in SASTRA-COLOSSEUM.
86.	R.ARAVIND KUMAR	THIRD	Runner up in football zonal and (lll division) winner up in football match inter college competition and 3rd prize in football match at SCE.
87.	ISSAC CLERENCE DENZIL	THIRD	1.1st prize in quiz at care college of engineering. 2.2nd prize in football match at SCE.
88.	G.ANAND RAVI SEKAR	THIRD	1st prize in quiz at care college of engineering.
89.	A.MOHAMED IBRAHIM	THIRD	1ST Prize in ELECTROPUZZ at care college of engineering.

90	**A.ANTO CLINTON**	**THIRD**	**1ST Prize in ELECTROPUZZ at care college of engineering.**
91.	LEO FELIX	THIRD	Attended In plant training in HAPP TRICHY.


ARTICLES


इसरो isro
ISRO
ACHIEVEMENT 2K17

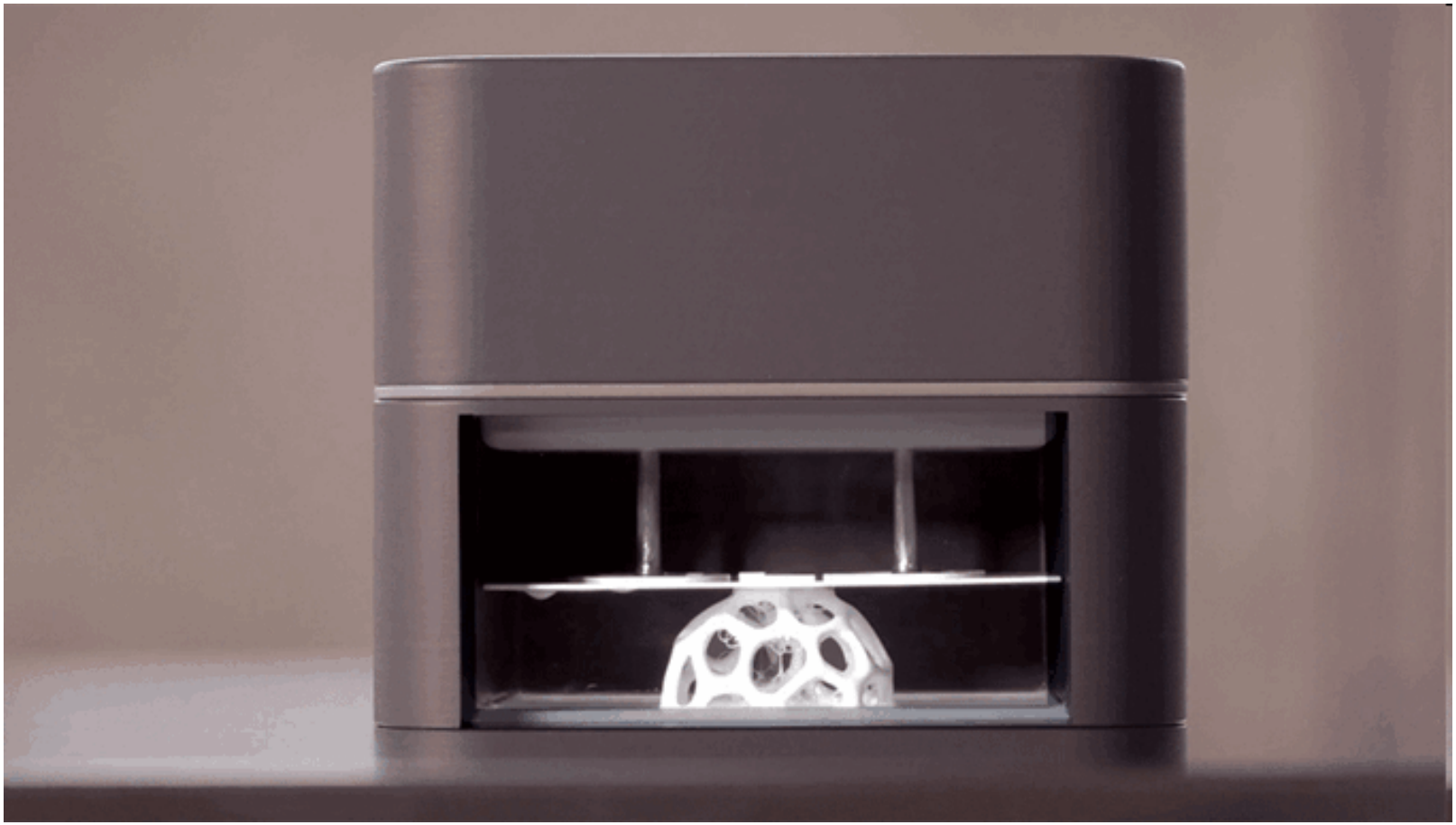
India has long proven its proficiency in the kind of rocket that launched a record number of satellites at one go on Wednesday, but the country's future growth in space will depend exclusively on its success with the indigenous Geosynchronous Satellite Launch Vehicle (GSLV) programme that is now far from perfect. The Polar Satellite Launch Vehicle (PSLV), which was used on Wednesday to deliver 104 satellites into Earth's orbit, has been the work horse of Indian space programme, notching up about 40 successful launches since 1994. But it cannot carry communication satellites weighing more than 2,000kg into space. This limits India's ability to compete with countries such as France or China for the $300 billion global space industry, and also forces it to hire foreign space firms to launch its own heavy satellites. So far, India's GSLV programme is far from reliable, having been successfully launched only twice using a home-built cryogenic engine after more than a decade of setbacks. The repeated failure of the programme saw GSLV being termed as the 'naughty boy' of ISRO. The first time it did so was in January 2014, launching the GSLV-D5 which put ISRO on the map of a select club of nations that can launch heavy satellites. The agency again successfully launched a GSLV-MkII rocket in September last. But experts see these as just the first step in the direction of developing a reliable launch system for the delivery of heavy satellites into different orbits. "Our aim should be to become proficient in GSLV launches because then we can carry payload category of 4500-5000 kg," said S Satish, formerly of ISRO. "The big bucks of space business lies in that."



For Indian space scientists, that goal is now being worked upon. ISRO is developing the GSLV-Mk III launch vehicle which is expected to deliver payload weighing 4500 to 5000kg. In comparison, Russian and French rockets can carry four times that payload and into higher orbits. “Now we are targeting GSLV MkII and then Mk III... a series of launch activities (have been) planned to ensure that like last year this year also we have many exciting events coming,” ISRO chief AS Kiran Kumar said after Wednesday’s achievement. ISRO’s long term plans include undertaking more than 50 missions and deploying 500 satellite communications transponders by 2019. That is easier said than done, given that ISRO is still to consistently prove the GSLV design, realisation and sustained firing of its indigenous cryogenic engine. Until then, experts say, it cannot hope to offer itself as a low-cost option for launching heavy satellites that would give stiff competition to global commercial satellite launch companies such as Europe’s Ariane or Russia’s Proton rockets.

- S.AKSHARAA, III YR, ECE-’A’

SMART PHONE INTO 3D PRINTER



Our phones already do plenty of things well beyond making calls and sending messages. Seriously, it’s evolved into a much more versatile tool than anyone probably imagined. And it’s not finished yet. This time around, a product called OLO vows to turn any phone into a functional 3D printer. While many 3D printers can interface with phones via apps, this one actually uses your phone to cure the resin. That’s right, your phone actually becomes an essential cog in the fabrication process, with the printer using the light from the phone's display to shape any object you’re producing.

Created by Solido3D, OLO is a portable 3D printer measuring 6.8 x 4.5 x 5.8 inches (w x d x h), making for, arguably, the first digital fabrication tool you can throw in a bag and carry everywhere (it's way smaller than the already compact M3D Micro). To use, you simply launch the app on your phone, choose the model you're fabricating, and lay your phone down on a flat surface. From there, you place OLO's lower component on top of the phone, pour the recommended amount of liquid resin, and place the top component (which holds the build plate and control electronics) to cover everything.

Printing will commence on its own, with the app making your phone's screen light up with a specific pattern that corresponds with the model. A polarized glass on the bottom of the lower component takes this light and shines it outwardly, redirecting it to cause a layer of resin to harden. The build plate slowly rises as each layer of resin hardens until the whole model is finished. There are no details on how long printing takes, but we're assuming it's going to be time-consuming similar to traditional 3D printers.

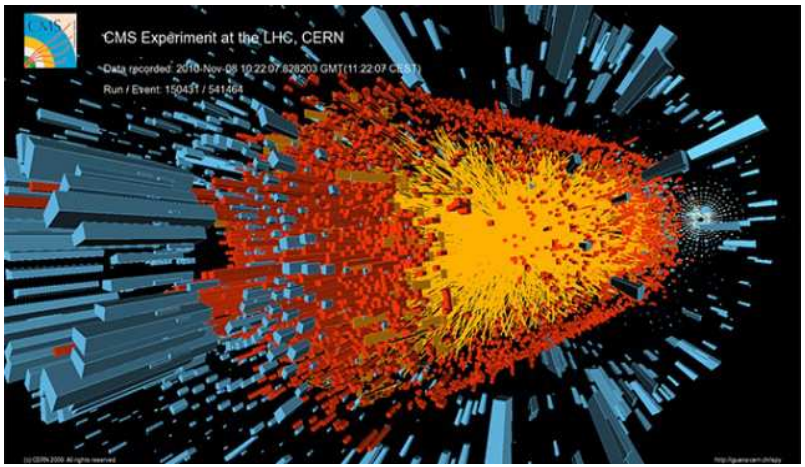
R.KISHORE
(ECE 2nd YEAR)

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. latest-technology-invention 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 smear 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.

V. GOPINATH
ECE 2nd year

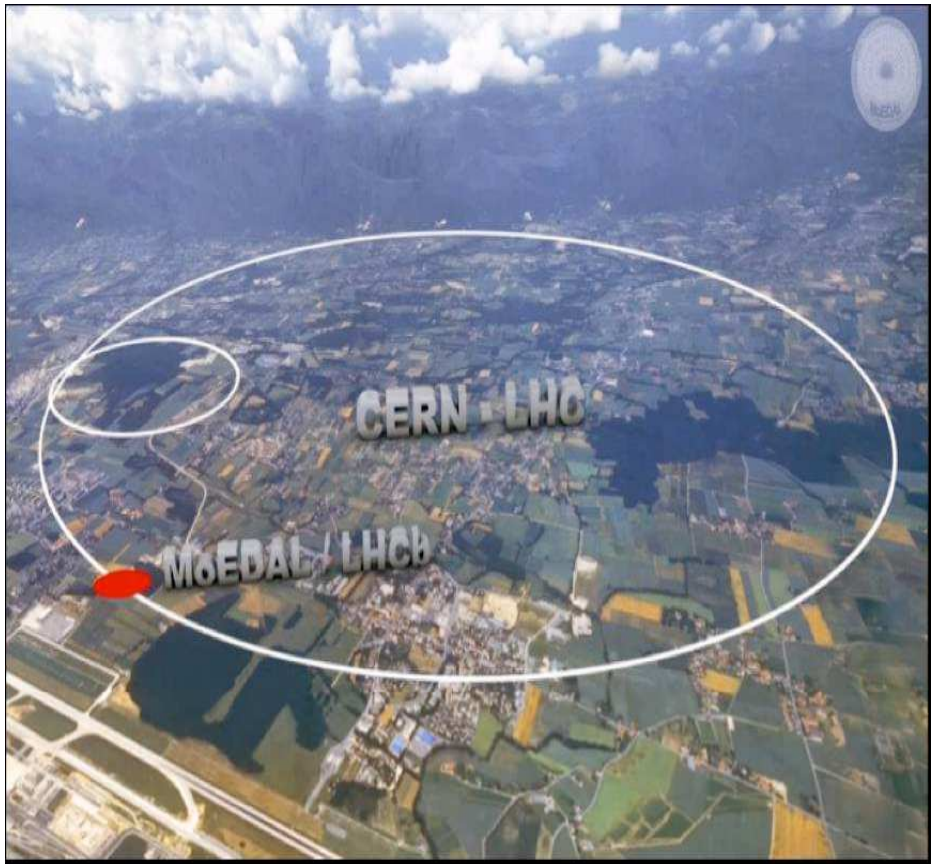
HIGGS BOSON AND HIGGS FIELD



There are four types of forces in nature .They are 1) Gravitational Force-By Newtonian mechanics ,it is the force between any two objects 2)Electromagnetic Force-It is the force between two charged particles 3)Strong Nuclear Force-It is the force between the neutrons and protons 4)Weak Nuclear Force-It is responsible for radioactive decay.
In electromagnetic force, two electrons interact to give out photon ,where photon is massless(speed of light) for a self consistent equation. Whereas in weak nuclear force ,the decay of nuclei produce W and Z Boson which have mass(100 times of proton).This ruins the consistency of the symmetric equation.

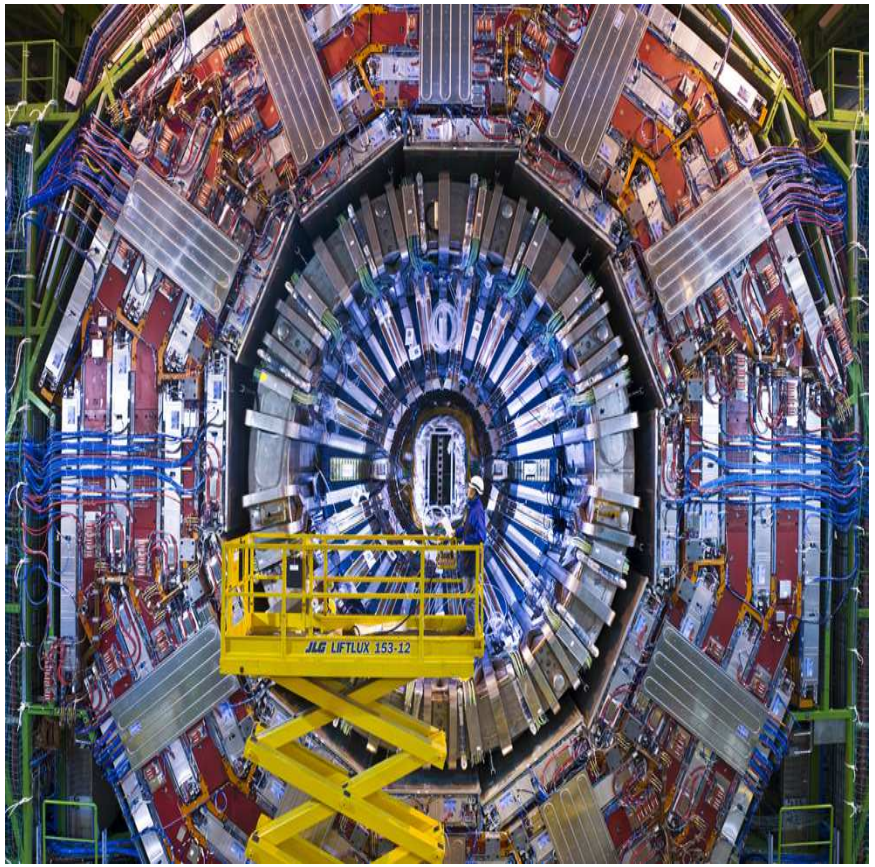
In 1964,Peter Higgs and a group of scientists proposed a paper in which all of the space consists of Higgs field. In this field photons does not interact hence they do not have any mass .Whereas the W and Z Bosons interact which give them their mass. This field consists of Higgs Boson. Like electric field consists of electrons the higgs field consists of higgs boson.

To proof this theory a Large Hardon Collider was build by CERN in Geneva,Swizerland between1998 and 2008 in collaboration with 10000 scientists .It has a circumference of 17 Mile and as deep as 175 meters. The aim of the LHC is to allow physicists to test the predictions of different theories of particle physics, including measuring the properties of the Higgs boson and searching for the large family of new particles predicted by supersymmetric theories as well as other unsolved questions of physics.



Satellite View

Circumferential View



On 12 july of 2012 ,the collision of protons leads the Higgs Boson in CERN.It survived for 10^-22 seconds.Then it decomposed into some other forms of energy such as dark matter.Higgs boson resulted in once in billionth collision hence it is very rare.The mass of higgs boson can be calculated from einstien's famous E=MC^2.

Electroweak symmetry breaking (due to a Higgs field or otherwise) is believed proven responsible for generating the masses of fundamental particles such as elementary fermions (including electrons and quarks) and the massive W and Z gauge bosons. Finding how this happens is pivotal to particle physics.

As yet, there are no known immediate technological benefits of finding the Higgs particle. However, a common pattern for fundamental discoveries is for practical applications to follow later, once the discovery has been explored further, at which point they become the basis for new technologies of importance to society.

The challenges in particle physics have furthered major technological progress of widespread importance. For example, the World Wide Web began as a project to improve CERN's communication system. CERN's requirement to process massive amounts of data produced by the Large Hadron Collider also led to contributions to the fields of distributed and cloud computing.

-VISHNU

3rd YEAR ECE B

3D PRINTED CHEESE

DELICIOUS TECHNOLOGY :D :P

Any way you slice it, cheese is considered by many to be a favourite food, whether cut into cubes as a snack, grated over pasta, layered in a sandwich or melted as a topping for pizza. This beloved dairy treat can transform easily from a solid to a gooey liquid and back to a solid again. So it should come as no surprise that cheese is also a candidate for experiments with food and 3D printers. These projects involve squeezing a gel, paste or semi liquid material through a nozzle to shape it into a solid and edible object. In a recent study, scientists 3D-printed cheese and conducted a series of tests evaluating its texture, resilience and "meltability," to see how this cheese from the future would stack up on a structural level against regular processed cheese. The inspiration for the researchers' investigation was a question posed by a cheese manufacturer, who wondered how cheese might be used as a raw material in kitchens that are likely to be equipped with 3D printers in the not-so-distant future.

study co-author Alan Kelly, a professor in the School of Food and Nutritional Sciences at University College Cork in Ireland, told Live Science in an email.

Kelly was familiar with 3D printing and had studied cheese and dairy projects for 20 years, but this was the first time he'd thought to bring the two together, he said."It was a very speculative question which made me very curious," Kelly said. "We actually started by trying lots of cheese types, but found processed cheese to work best.“ Processed cheese is produced using techniques that 3D printing mimics very closely mixing ingredients and moulding them into a new shape. And 3D-printing cheese could provide valuable insight for engineers who are still developing materials for 3D printing, which need to be fluid enough to flow through a nozzle but also capable of settling into "a buildable shape and structure," Kelly explained. The scientists melted processed cheese at 167 degrees Fahrenheit (75 degrees Celsius) for 12 minutes, and then ran it through a 3D printer using two different extrusion rates in other words, varying the speeds at which the printer pushed the molten cheese out through the syringe.

They compared the 3D-printed results to processed cheese that had been melted and then cooled in a cylinder, and to processed cheese that was unchanged from its original solid state.

Cheese that was 3D printed was 45 percent to 49 percent softer than the untreated processed cheese, the study authors found. They also discovered that 3D-printed cheese was a little darker in colour, a bit springier and more fluid when melted, though it melted at approximately the same temperature as untreated cheese, according to the study. Now that the 3D-printed cheese hurdle has been cleared, Kelly and his colleagues are testing other types of dairy products that can be 3D-printed. "We are using mixtures of milk proteins at present to build a product, perhaps a high-protein snack, from the basics up, and designing recipes which might work best for [a] 3D printer," Kelly said. "We are pretty early on to generalize about different food systems, but that makes printing really exciting, as there is enormous potential to explore and innovate." Innovation and exploration aside, what does 3D-printed cheese taste like?

Alas, the samples were too small for detailed sensory analysis, so that question remains unanswered until it can be addressed in future studies, Kelly said."But we don't expect any changes in taste," he told Live Science.

-S.Aksharaa
III yr , ECE A


FARMING EMBRACES
THE IOT

The farm is perhaps the last place where you would look for advanced technology. But pressures on food production make agriculture a prime candidate for harnessing the potential of automation and the IoT. Real-time data collection is the key to improving yields and making the most of precious resources. Cellular, LoRaWAN and SIGFOX are potential candidates for networking sensors and actuators across a farm. However, the balance of features points to LoRaWAN being the best overall solution for many applications. Although cellular provides long range, its coverage in rural areas can be patchy. Additionally, data sent over the cellular network will incur a cost based on the amount of data transmitted.

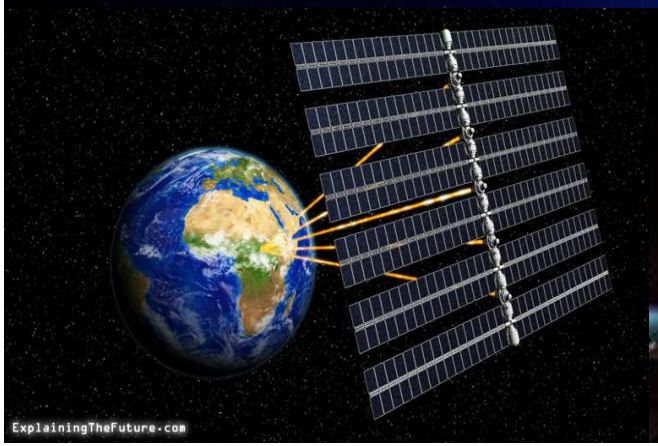
SIGFOX has the benefit of offering flat-rate data plans and is supported by hardware such as ON Semi's AX-SFEU modules. But as a network technology it has limitations. The data rate is comparatively low: between 10bit/s and 1kbit/s. This may not be an issue for agricultural applications where readings will be taken maybe ten times a day per sensor. SIGFOX is also a unidirectional link. This has a benefit in terms of power consumption for sensor nodes: there is no need for them to use power to listen for transmissions. They only activate the RF link when they have data to send.

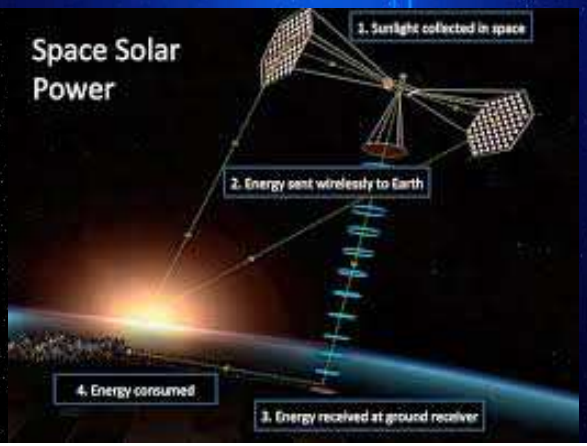
Conversely, actuator controllers would only receive commands. LoRaWAN has support from multiple silicon providers. STMicroelectronics offers a range of Nucleo development kits for the network protocol in addition to Microchip Technology's RN2483 LoRa module and Semtech's own SX127x family of interface devices. LoRaWAN also has the benefit compared to traditional radio systems of offering access to devices buried below ground such as parking water sensors and subsurface irrigation valves. In addition, it has a transmit range on the order of 10km. Resilience to interference from other unlicensed-band users is helped by the use of a spread-spectrum modulation scheme. Achievable data rates range from 300bit/s to 50kbit/s, similar to that of existing GPRS connections.

RF choices may be deployment-specific. Pycom boards fit well here as platforms because there are versions for long-range Wi-Fi, which support distances up to 1km, SIGFOX and LoRaWAN. A fast and affordable way of getting field data to mission control is to set up several battery operated modules connected to soil sensors in the field with a module connected to a Raspberry Pi in the farm, to deliver a real-time dashboard to the farmer. The farming industry is very receptive to technical innovation and is already embracing IoT, using information from sensors, machinery and weather stations, for example," said Saverio Romeo, principal analyst at Beecham Research.

-T.S.MOHANA PARAMESWARI
K. MOHANA PRIYA
3RD YEAR ECE 'A'

WIRELESS POWER TRANSMISSION THROUGH SOLAR POWER SATELLITE





S. Gokulavani
T. Harshinya
3RD YEAR ECE-A

In the near future due to extensive use of energy, limited supply of resources and the pollution in environment from present resources (e.g. wood, coal, fossil fuel etc), alternative sources of energy and new ways to generate energy which are efficient, cost effective and produce minimum losses are of great concern. Wireless electricity (Power) transmission (WET) has become a focal point as research point of view and nowadays lies at top 10 future hot burning technologies that are under research these days. In this paper, we present the concept of Solar Power Satellites -The solar cells in the satellite will convert sunlight to electricity, which will changed to radio frequency energy, then beamed to a receiver site on earth and reconverted to electricity by using transmitting and receiving antenna with the technology of wireless power transmission (i.e., transmitting power as microwaves in order to reduce the transmission and distribution losses). The SPS is a gigantic satellite designed as an electric power plant orbiting in the Geostationary Earth Orbit(GEO). It consists of mainly three segments; solar energy collector to convert the solar energy into DC (direct current) electricity, DC-to-microwave converter, and large antenna array to beam down the microwave power to the ground. The first solar collector can be either photovoltaic cells or solar thermal turbine. The second DC-to-microwave converter of the SPS can be either microwave tube system and/or semiconductor system. Itmay be their combination. The third segment is a gigantic antenna array. An amplitude taper on the transmitting antenna is adopted in order to increase the beam collection efficiency and to decrease side lobe level in almost all SPS design.

A typical amplitude taper is called 10 dB Gaussian in which the power density in the center of the transmitting antenna is ten times larger than that on the edge of the transmitting antenna. Power will be transmitted over a 1-1/4 mile range to a receiving antenna (rectenna) and then fed into a commercial utility power grid.

Four basic steps involved in the conversion of solar energy to electricity and delivery

1. Capture solar energy in space and convert it to electricity
2. Transform the electricity to radio frequency energy and transmit it to Earth
3. Receive the radio frequency energy on Earth and convert it back to electricity
4. Provide the electricity to the utility grid

Wireless Power Transmission system would completely eliminates the existing high-tension power transmission line cables, towers and sub stations between the generating station and consumers and facilitates the interconnection of electrical generation plants on a global scale. It has more f reedom of choice of both receiver and transmitters. . The power could be transmitted to the places where the wired transmission is not possible. Loss of transmission is negligible level in the Wireless Power Transmission; therefore, the efficiency of this method is very much higher than the wired transmission. Power is available at the rectenna as long as the WPT is operating. The power failure due to short circuit and fault on cables would never exist in the transmission and power theft would be not possible at all. The development of Solar Power Satellites gain the benefits of abundant, low-cost, nonpolluting energy. The great advantage of placing the solar cells in space instead of on the ground is that the energy is available 24 hours a day, and the total solar energy available to the satellite is between four and five times more than is available anywhere on Earth and 15 times more than the average location.

Union Budget 2017-18

Leo Felix . M
3rd Yr, ECE B

WHAT IS UNION BUDGET?

- The budget is the annual announcement of the government's fiscal policy changes. It announce the tax changes proposed for the following tax year and also how the government plan to spend the revenue.
- It is an instrument for fulfilling the obligations of the states
- It is a political statement of the priorities set by the government.
- It shows the financial transaction of the year.

HIGHLIGHTS OF BUDGET

- Demonetization
- Agriculture
- Personal income tax

IMPLEMENTATION OF BUDGET

- An annual budget(s) should be adopted for every governmental unit
- The accounting system should provide the basis for appropriate budgetary control
- A budget, when adopted according to the procedures specified in state laws, is bending upon the administrators of the government

Income tax

Proposed – Budget 2017 tax rates	
Income (INR)	**Tax Rate (%)**
Upto 250,000	NIL
250,001 to 5,00,000	5%
5,00,001 to 1,000,000	20%
1,000,001 and above	30%

Existing tax rates	
Income (INR)	**Tax Rate (%)**
Upto 250,000	NIL
250,001 to 5,00,000	10%
5,00,001 to 1,000,000	20%
1,000,001 and above	30%

----END----


BRAIN GATE

Brain gate is a device used to bring control to the people, who lost control over the limbs or other bodily functions, such as patients with amyotrophic lateral sclerosis (ALS) or spinal cord injury. A chip is implanted into the brain, which monitors the activity of the brain and converts the intension of the user into commands. It is also called as mind-to-movement system that allows a quadriplegic man to control a computer using only his thoughts is a scientific milestone. It was reached in larger part, brain gate system. This system became a boon to the paralyzed. Currently the chip uses 100 hair-thin electrodes that sense electromagnetic signals of neurons firing in specifying areas of brain. Cyber kinetics describes that "such applications may include novel communication interfaces for motor impaired patients, as well as monitoring and treatment of certain diseases which manifest themselves in pattern of brain activity such as epilepsy and depression".

Brain gate is a brain implant system developed by the biotic company, cyber kinetics in conjugation with the Department of Neuroscience at brown university .The development of the brain gate system brain computer interface is to enable those with severe paralysis and other neurological conditions to live more productively and independently .The activity of brain is translated into electrically charged signals and is sent and decoded using a program which can move a robotic arm, computer cursor, or even a wheel chair. Brain gate will be the first human device that has been to record, filter and amplify multiple channels of recorded neural activity at a very high spatial and temporal resolution.

WORKING OF TECHNOLOGY:

The basic elements of brain gate are the chip, connector, convertor, computer and sensor .

THE CHIP: A four millimeter square silicon chip studded with about 100 hair thin micro electrodes is embedded in the primary motor cortex of the brain.

CONNECTOR: When somebody thinks, to move the cursor up and left his cortical neurons fire in a distinctive pattern the signal is transmitted to the pedestal attached to the skull.

CONVERTOR: It converts the signal to optical data and bounced by fiber optic cable.

THE COMPUTER: Brain gate learns to associate patterns of brain activity with particular imagined movements up , down , left , right and to connect those movements to the cursor .

SENSOR: It records indication directly related to imagine limb crusade

- K.MEYYAMMAI,
A.ABINAYA,
3RD YR, ECE A.


DARK MATTER
PROTON
PHOTON
e⁻
NEUTRINO
MUON
NEUTRON
QUARK
VISIBLE MATTER
e
e
DARK ELECTRONS
DARK NEUTRON
NEUTRALINO
AXION
AXION
GRAVITINO
Wimp

DARK MATTER:

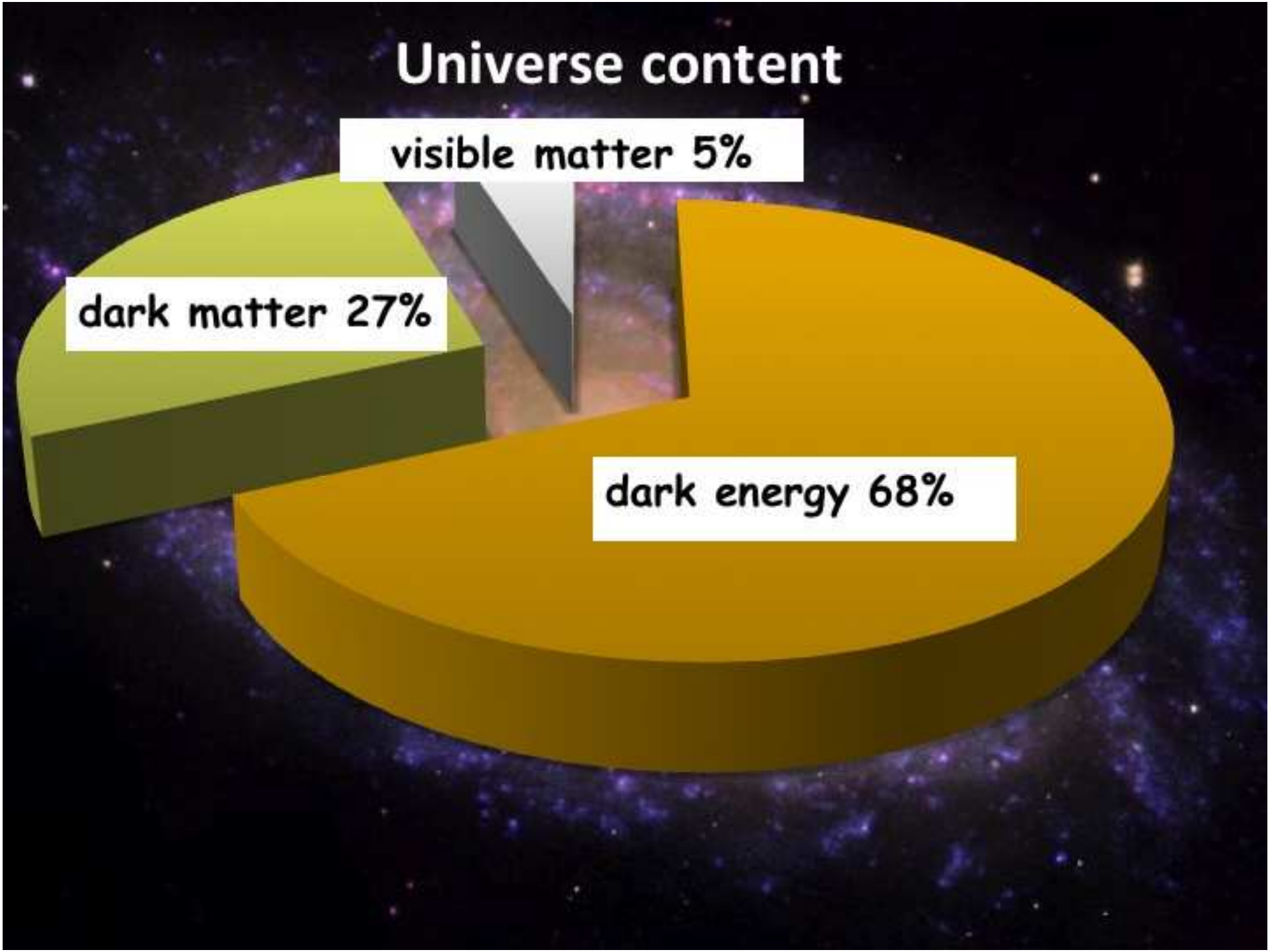
The particles that do not reflect light are called dark matter. They do not operate on the entire electromagnetic spectrum. That means they do not propagate photon or any kind of luminous particles.

Dark matter and dark energy make up to 95% of the universe's constitution. The visible matter i.e. the electromagnetic part of universe makes only the rest 5% of the universe.

THEORIES ON DARK MATTER:

The big bang theory explains that the universe is a constantly expanding void i.e. all the matter in universe expand into nothing, which is something. This leads to the theory that for every particle of dark matter destroyed, several are created and thus expand the universe.

Dark matter do not let electromagnetic field or particles pass through it. Thus, they can be identified by sending a burst of electromagnetic radiation in space. These particles will be diverted around certain specific lattices in space. These points are termed to contain dark matter.


Universe content
visible matter 5%
dark matter 27%
dark energy 68%

ANTI-MATTER:

Anti-matter and matter can be termed as the two sides of same coin. Matter and anti-matter are exact equals in terms of molecular weight, space occupied, and constitution but they carry the exact opposite charge of one another.

Anti-matter are exact opposites of matter in terms of charge and polarity.

According to the big bang theory, both matter and anti-matter should have constituted the same amount in the universe.

Matter and anti-matter can annihilate one another, which can produce tremendous amount of energy. These should have annihilated each other when the universe formed. But there is a large imbalance in the ratio of matter and anti-matter.

PRODUCTION OF ANTI-MATTER:

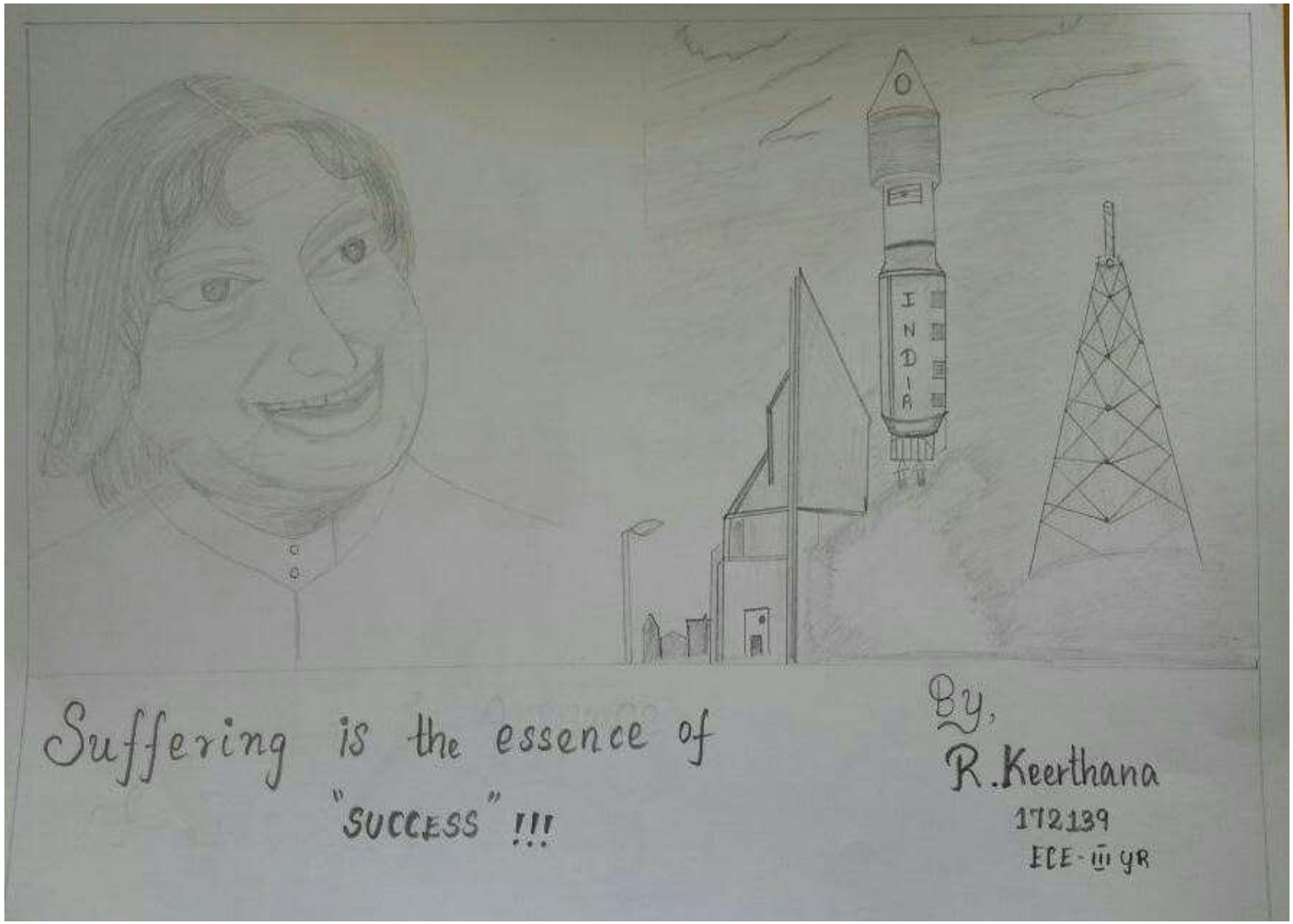
The anti-matter can be produced in particle accelerators. They are obtained every one million collisions. They are products of radioactive decay. The anti-matter is produced as a product of transforming energy to matter. This means energy produces equal amount of matter and anti-matter. The anti-matter cannot be trapped easily and the process is very expensive. Their decay time is 10^-21 seconds.

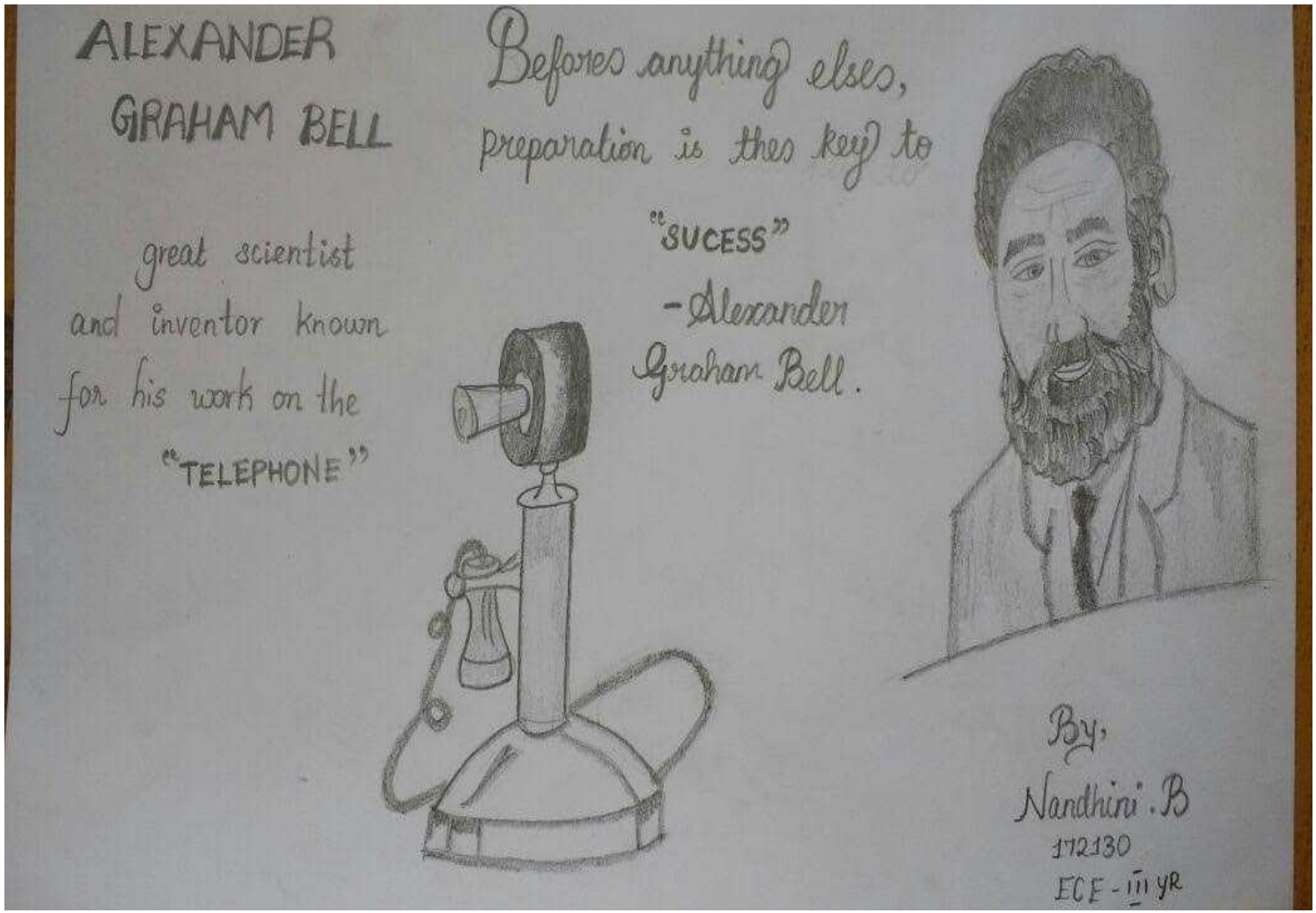
The dark matter can be used as a source of energy if it can be obtained easily.

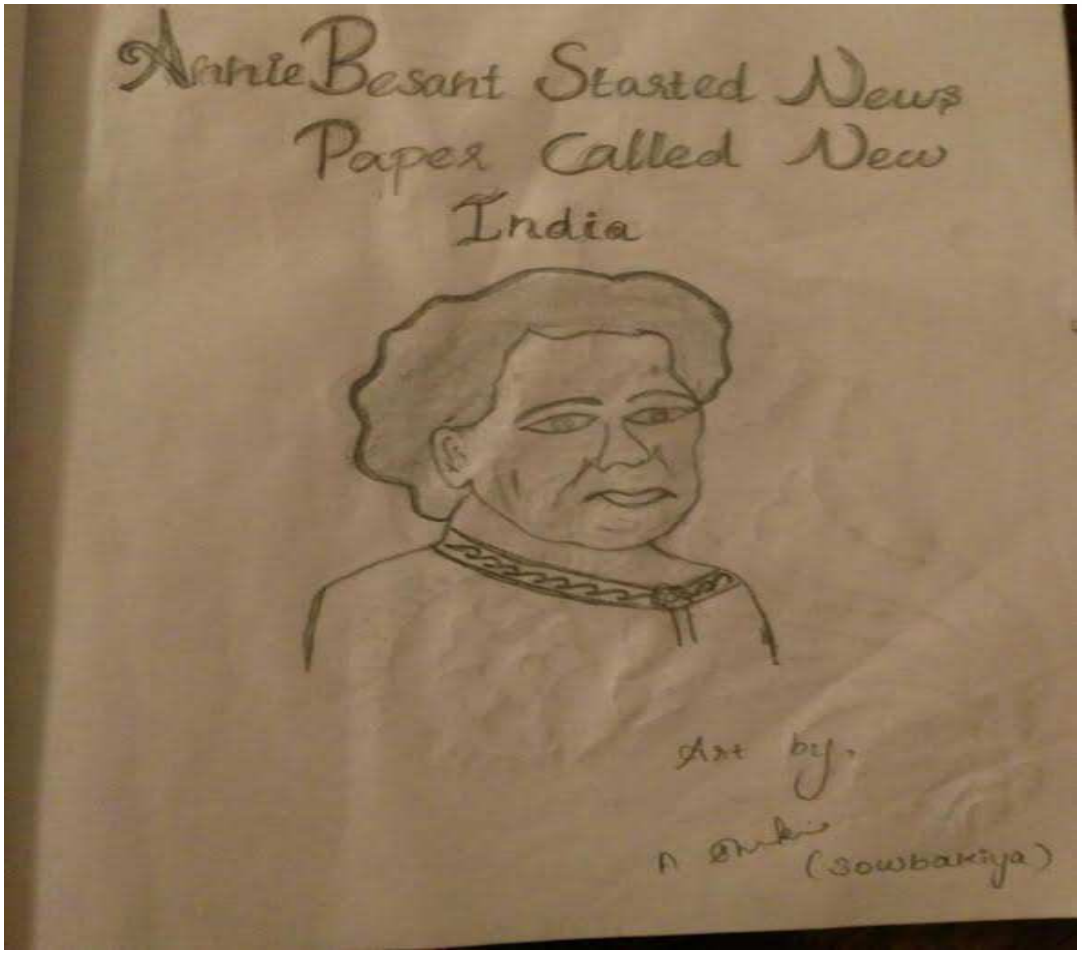
SRIVATSAN

3RD YEAR ECE

WELCOME TO OUR ART GALLERY


INDIA
Suffering is the essence of
"SUCCESS" !!!
By,
R.Keerthana
172139
ECE - III yR

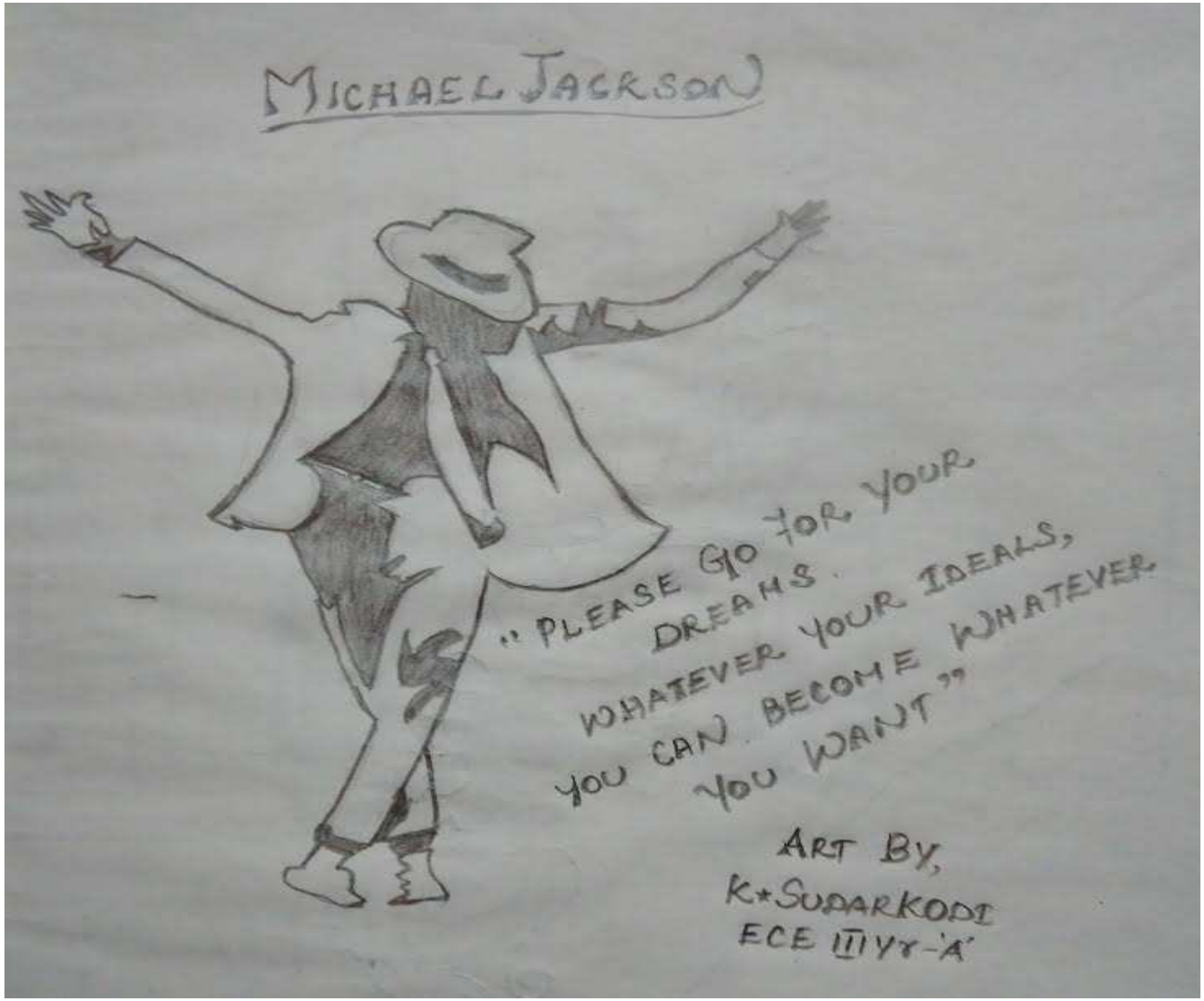

ALEXANDER
GRAHAM BELL
great scientist
and inventor known
for his work on the
"TELEPHONE"
Befores anything elses,
preparation is thes key to
"SUCESS"
-Alexander
Graham Bell.
By,
Nandhini.B
172130
ECE - III yR



- **Sowbakiya**
  3rd yr, ECE-A

-Yeseswini

3rd yr, ECE-B


MICHAEL JACKSON
" PLEASE GO FOR YOUR DREAMS WHATEVER YOUR IDEALS, YOU CAN BECOME WHATEVER YOU WANT "
ART BY,
K. SUDARKODI
ECE III YR-'A'

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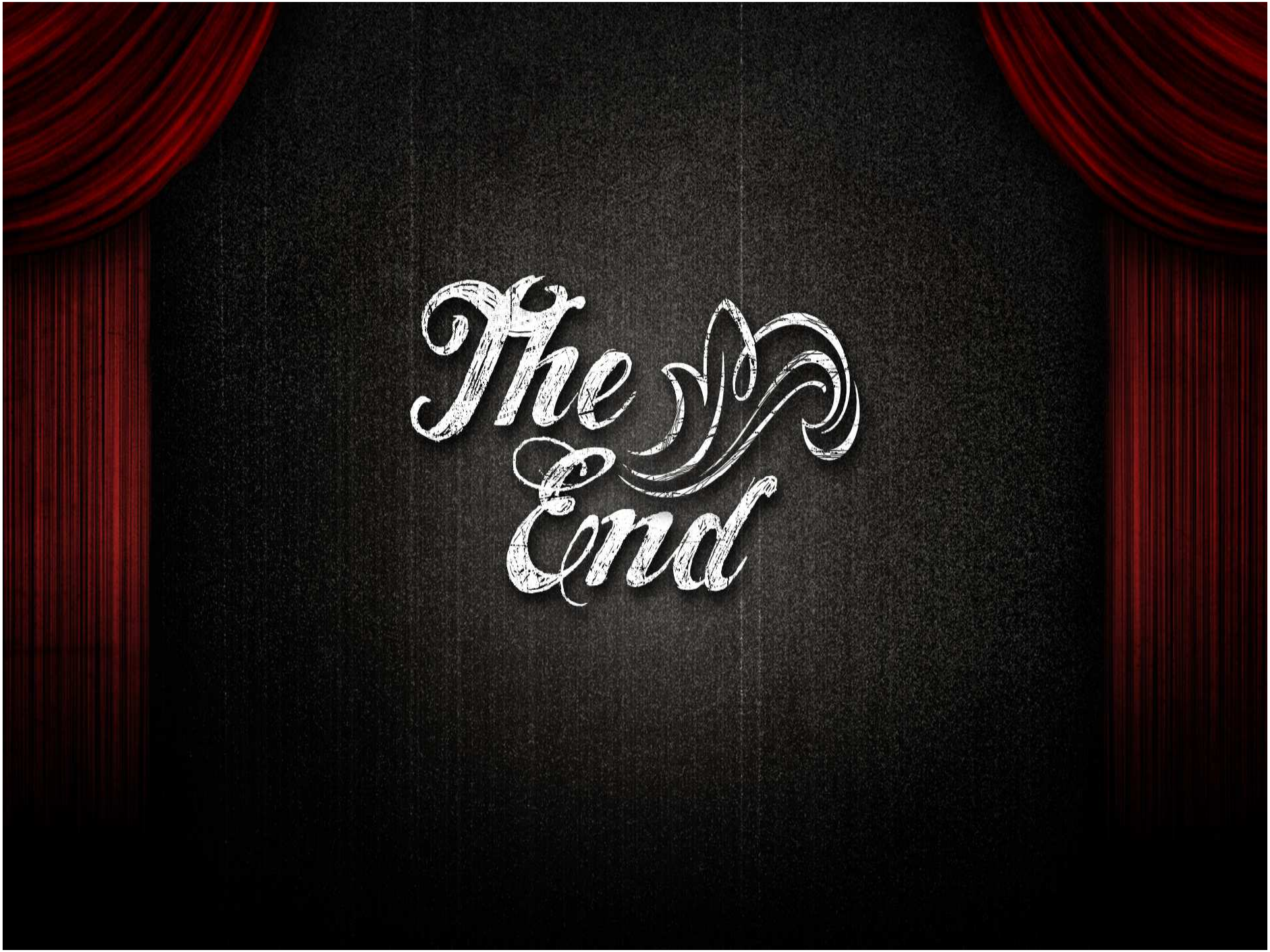
The End