

DESALITE

NEWSLETTER



REFLECTORE

Newsletter by the Department of Science

DECEMBER 2018

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Quotes

Education is not what you learn but what you do with what you learn.

The four essential skills for success are concentration, organisation, innovation and communication.

“Genius is one percent inspiration and ninety-nine percent perspiration.”

Message from HOD



Dear Desalities

Greetings from the Department of Science!!!!!!

I take this opportunity to welcome you all to be a part of BSc Department - Bangalore University, Bangalore. Our college has the distinction of being known as one of the pioneers in the field of education and has been accredited with Grade ‘A’ by NAAC. Our aim is to remain at the forefront of learning, teaching and research. We strive hard to promote academic excellence and are committed to creating an ambience for fostering innovation and creativity.

The objective of department is to prepare students for successful career, research and academics to meet the needs of growing technology. Our efforts are put in to develop the ability among students to synthesize data and technical concepts for application. We provide opportunity for students to work as members of a team.

With our distinct student centered teaching-learning methodology, our students will be able to face challenges of life with our holistic approach in teaching and learning encouraging students to indulge in extracurricular activities to shape them as leaders of tomorrow. All these efforts are followed ambitiously to develop the overall personality of the students so as to equip themselves with modern and sensitive outlook to face the challenges of the competitive world.

Our faculty are the strong pillars of the department whose focus is to empower a diverse community of students to nurture their capabilities, transform their lives and find success through high quality teaching and learning. They also encourage to make the world a better place through the creation, sharing and use of new knowledge.

Dear students, these years of under graduation are very important years of your life. These years will build your personality. So utilize every minute in a constructive manner. Enhance your knowledge by understanding your topic theoretically and practically. Ask ques-

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Automatic Health Monitoring System Using Raspberry Pi

The Raspberry Pi is a low cost, credit – card sized computer that plugs into a computer monitor or TV, and uses a standard keyboard and mouse.

In the traditional approach the healthcare professionals play the major role.

There are two basic problems associated with this traditional approach.

Firstly, the healthcare professionals must be present on site of the patient all the time.

Secondly, a reliable and readily available patient monitoring system (PMS) is required.

Parameters

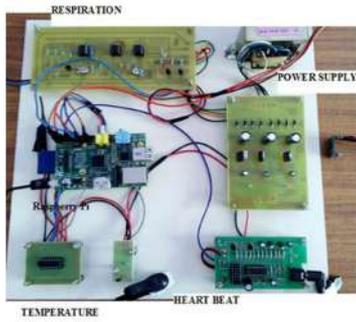
In this system we are measuring certain parameters like ECG, Temperature, Heart rate, Pulse etc.

If these parameters goes abnormal, GSM sends alert to the Doctor, which helps in the communication between them.

Literature Survey

- * Real Time Wireless Health Monitoring Application using Mobile Devices [1]
- * GSM based tele alert system [2]
- * A Multi-Alert Patient Health Monitoring

Automatic Health Monitoring System Using Raspberry Pi



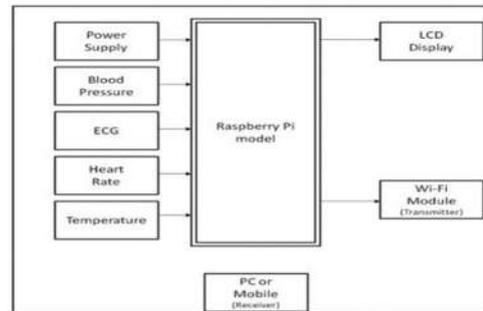
- * Low Cost and Portable Patient Monitoring System for E-Health Services in Bangladesh
- * Health Gear: A Real-Time Wearable System for Monitoring and Analysing Physiological Signals.

- * Helpful in emergency period.
- * Cost is very low.
- * Useful for remote areas.

Shalini.K.R & Divya.S
BSc V sem

Benefits

- * Wired communication is eradicated.
- * Real time monitoring of the patient is possible.
- * The doctor does not need to visit the patient to monitor him/her.
- * Time is saved.



BRAIN ACTUATED WHEEL CHAIR USING BRAIN WAVE SENSOR



Brain-computer interface (BCI) is a technology that allows humans to control a computer, peripheral or other electrical device with thoughts.

brains of two rats with electronic interfaces that allowed them to directly share the information.

Designing of wheel chair

An electrical wheelchair is required for this project. The electrical wheelchair structure is built from scratch and the electronic circuits are designed in order to control the electric motor on the wheelchair. The electronic circuits include the microcontroller and motor driver.

It does by using electrodes to detect electrical signals in the brain which are sent to computer. The computer then translates these electrical signals into data which is used to control a computer or a device linked to computer.

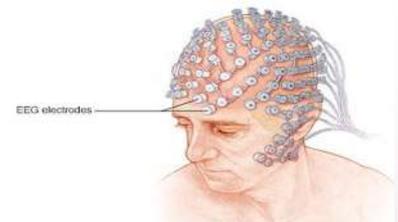


Brain wave sensor:

* The brain signals are collected using brain wave sensor.

* Using this signals wheel chair is moved.

- The brain wave sensor consist of 3 parts.



In 1924, Hans Berger, a German neurologist was the first to record human brain activity by means of EEG. In 1970, A research on BCI began at the University of California Los Angeles (UCLA).

In 2005, Mathew Nagle was one of the first person to use a BCI restore functionality lost to paralysis. In 2013, Duke university researchers successfully connected the

Roshni Haobijan, Aishwarya, Pavithra
BSc V Sem

DISTRICT LEVEL SCIENCE EXHIBITION WINNERS

BSc (MEC) students participated in Karnataka District level science exhibition for degree students at Jain College, JC road Bangalore and won the second prize.

The Prize was won for their model on the theme human safety and have selected for state level science project exhibition under the guidance of Shaik Shavez Ahmed, lab instructor, Department of Science.



Mr Shaik Shavez Ahmed (Lab Instructor) Had Conducted a Workshop for BCA Students on Rectifiers, Network Theorem's, flip flops and Semi-Conductors, on 16/10/2018 at Sacred Heart Degree College, Bengaluru.

ANKURAM 2018



The Department of science conducted its first student national seminar “ANKURAM 2018” on 19th September 2018 with the main theme

modern approaches in Science and Mathematics. Post graduate as well as graduate students from various colleges attended and presented papers under the subthemes material science, nanotechnology, analytical techniques, communication system, embedded system, numerical analysis, graph theory and discrete mathematics. Dr. Rajeswari, Department of Mathematics, MGR College, Hosur, Tamilnadu and Prof. Sathyaveena V., Associate professor, Department of Electronics, Oxford College of

Science, Bangalore judged the sessions.

Among the 17 presentations three presentations were selected for the prizes. The first prize was won by S.K.Swarna Lakshmi, II MSc Mathematics, MGR Arts & Science College, and Hosur for the presentation on the topic “Mathematics in material science”. The second prize was won by Sharon & Jinsha, III sem BSc (MEC), St. Francis De Sales College, while the third prize was won by Jyothismitha and Rubyka B.K of III Sem BSc (PCM), ST. Francis De Sales College for their presentation on “Flavonoids in mangroves- a comparison”.



BRAIN CHIPS

INTRODUCTION

* Brain chips are often referred to as neural implants or technological device that connects directly to biologically subjected brain.

- When we are entering into this topic, the words of the physiologist Jose Delgado need to be mentioned.

FIRST EXPERIMENTED ON.....

The first patient Matthew Nagle, a 25 year old man with a Severe spinal cord injury, has been paralyzed from the neck down since .

Nagle is unable to move his arms and legs after he was stabbed in the neck.

* A chip in the BrainGate system is of 100 hair thin electrodes.

- It senses electromagnetic signature of Neutrons.

BRAINGATE TECHNOLOGY

* Brain Gate is a technology that can be implemented in the brain.

- When it is implemented in the Brain , the electrical signal is exchanged by neurons within the brain.

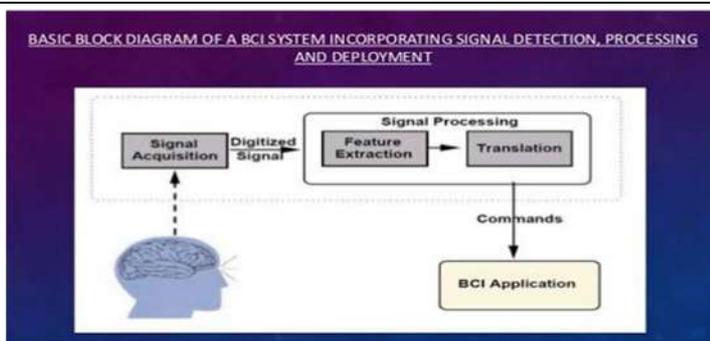
BRAINGATE EMPOWERING THE HUMAN BRAIN:

The braingate system is used to since, transmit ,analyse and apply the language of neurons.

PRINCIPLE

* With intact brain function, brain signals are generated even though they are not sent to the arms , legs and hands.

- The signals are interpreted and transmitted into cursor



movements.

THE CHIP

- A four millimeter square silicon chip studded with 100 hair-thin , micro electrodes is embedded in brain’s primary motor cortex.
- * The sensors detects tiny electrical signals generate when a user imagines.

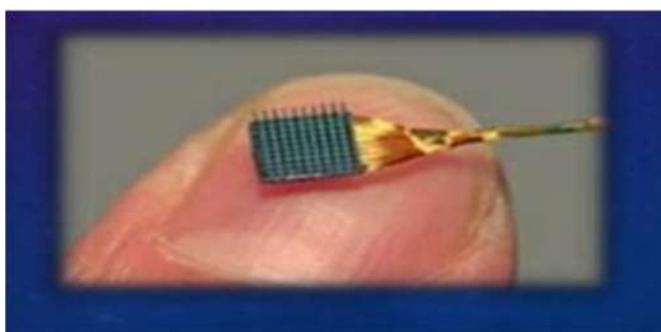
THE COMPUTER

- * A brain-computer interface users electrophysiological signals to control remote devices.
- * The brain computer interface which re invasive is preferable.

BLOCK DIAGRAM OF BRAIN CHIPS

Benefits of Brain Chip

- * It will increase the dynamic ranging of senses.
- * It will give light to blind and give paralyzed patients full mental control of limbs.



- * No genetic modifications in the next generation.
- * Rescue mission (remote controlled rat).

Akshatha S and Nadiya S
BSc V Sem

FACULTY CORNER

THE DIAMOND STAR - a new discovery



The observable universe has a diameter of 25 billion light years and the number of galaxies it contains is

still uncertain. And in such huge universe, scientists have found that about 900 light-years away, there exists the coldest white dwarf star.

In fact, this 11 billion years old dim stellar corpse is so cold that its carbon has crystallized, effectively forming a diamond, a big diamond hiding in space... The star was once the size of our sun, but it burned through its fuel, cooled and contracted into an earth-sized object called a white dwarf, made of crystallized carbon. In other words, it became a star made of diamond.

Dwarf stars are too dull to be found and yet have a very powerful gravitational force. So detecting this dwarf cold star was a difficult task. Astronomers observed that the pulses arriving at earth were periodically delayed, as if some unseen companion were causing the pulsar's radio emission to take a

somewhat circuitous route to earth. This happens when massive companion's gravity messes with the fabric of space, causing things like light and radio waves to travel along twisted pathways. Studying these delays helped scientists determine that the pulsar has a mass 1.05 times that of the sun.

The spinning neutron star is the extremely dense remnant of a formerly huge star that ended its life in a supernova. Neutron stars are thought to form by the gravitational collapse of the remnant of a massive star after a supernova explosion, provided that the star is insufficiently massive to produce a black hole.

When talking about stellar objects, "cold" is a relative term; this white dwarf is still burning at 4,892 degrees Fahrenheit (2,700 degrees Celsius), which is 5,000 times cooler than the center of earth's sun.

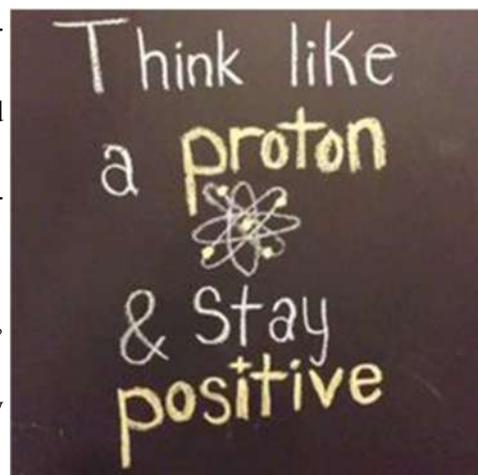
And so such a cool object would be largely crystallized carbon, similar to a diamond, the scientists said. Astronomers have theorized that these objects should be lurking in the universe, but diamond stars are difficult to detect because they are so faint.

Up above the world so high, like a diamond in the sky

- Prof. Smrutee Markhedkar

QUOTES AND FUN FACTS - SCIENCE

- ◆ Never give up on what you really want to do. The person with big dreams is more powerful than the one with all the facts.
- ◆ The science of today is the technology of tomorrow
- ◆ Science without religion is lame, religion without science is blind.
- ◆ Our scientific power has outrun our spiritual power. We have guided missiles and misguided men.
- ◆ Science knows no country, because knowledge belongs to humanity, and is the torch which illuminates the world.
- ◆ Every great advance in science has issued from a new audacity of imagination.
- ◆ Geologists have a saying - rocks remember.
- ◆ Most of the fundamental ideas of science are essentially simple, and may, as a rule, be expressed in a language comprehensible to everyone.
- ◆ The whole of science is nothing more than a refinement of everyday thinking.



REFLECTORE is a Newsletter published from the Department of Science - St Francis de Sales College, Electronics City, Bengaluru - 560100. It highlights the activities of the Department and serves as a link between the Department as well as other colleges. You are welcome to send your feedback to sfsnews-letters@gmail.com

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