



MIND'SPARK

News Letter

Department of Mechanical Engineering

Academic Year 2019-20 | Volume 4 Issue1 | Sept 2019

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InFocus: Scientist: Sir C V Raman



Sir Chandrashekhara Venkata Raman was born on 7 November 1888. He was an Indian physicist born in the former Madras Province in India. He carried out ground-breaking work in the field of light scattering, which earned him the 1930 Nobel Prize for Physics and was the first person in Asia to obtain said award for achievements in science. He discovered that when light traverses a transparent material, some of the deflected light changes wavelength & amplitude. This phenomenon, subsequently known as Raman scattering, results from the Raman effect.

It started on a voyage to Europe in 1921, Raman noticed the blue colour of glaciers and the Mediterranean sea. He was motivated to discover the reason for the navy blue colour. Raman carried out experiments regarding the scattering of light by water and transparent blocks of ice which explained the phenomenon.

Raman employed monochromatic light from a mercury arc lamp which penetrated transparent material and was

allowed to fall on a spectrograph to record its spectrum. He presented his theory at a meeting of scientists in Bangalore on 16 March 1928, and won the Nobel Prize in Physics in 1930. Peter Pringsheim was the first German to reproduce Raman's results successfully. He was the first to coin the term "Raman effect" and "Raman lines."

In the year 1954, the Indian government honoured him with India's highest civilian award, the Bharat Ratna.



STUDENTS PARTICIPATION

S No	Roll No	Name of the Student	Name of the Event	Organising College	Month & Year
1	160718736302	Bittu Jeevan	Raw	MCET	Jul 2019
2	160718736301	Ashraf Ali	RAW workshop	MCET	Jul 2019
3	160718736073	Polakonda Harish	Games	Narayana junior College /hayathnagar, kalavancha	Jul 2019
4	160718736015	Mohammed Haseebuddin	Games	Saudi Arabia	Jul 2019
5	160717736014	Abhinay Reddy	Games	MCET	Jul 2019
6	160717736301	Abdul Raheem	Workshop of arduino and IWS seminar	MCET	Jul 2019
7	160717736028	Sulegam Anand	Arduino	MCET	Jul 2019
8	160717736020	M. Shashank	Recent advances in welding (RAW-2019)	MCET	Aug 2019
9	160717736010	S Ajay Kanth	IWS Seminar	MCET	Aug 2019
10	160717736005	Tokala Shashidhar Reddy	IWS WORKSHOP	MCET	Aug 2019
11	160717736008	G Sai Kumar	Seminar on IWS indian welding society	MCET	Aug 2019
12	160718736318	V. Kotesb	Recent Advances in Welding 2019 workshop	MCET	Aug 2019

NOTABLE FINAL YEAR PROJECTS

COMPOSITE DRIVE TRAIN OF BICYCLE



- Chain system in the bicycle is replaced by a new system.
 - New system consists of a shaft, sprockets and bearing cones.
 - Bearing cones have pins on one end that are embedded with a number of ball bearings. The sprocket fit in the recess between the bearings.
 - Due to elimination of a number of links, the friction is greatly reduced.
 - Better efficiency is obtained.
 - Cloud based software "On Shape" has been used.
- The principle can be implemented for high power vehicles, which are run by engines. Light weight & durable materials can be used.

DESIGN AND FABRICATION OF WHEEL CHAIR FOR PHYSICALLY CHALLENGED PEOPLE

- Electrical powered wheelchairs run with electric power however manual operation is required to operate the joystick for the movement of the chair. The redesign of the manual wheelchair was considered for this project.
- The feedback was taken from different users and attendees, concept generation and design execution –was done by the implementation of design methodologies like Quality Function Deployment, Mind mapping, Product Design Specification.
- The final output is a wheelchair which gives multiple options to the user and attendee by providing ease of defecation, cleaning and changing of clothes. Adjustable back rest, arm rest, leg rest provides comfort for the patient while resting.
- The adjustable armrest provides ease of shifting the patient from chair to the bed or to the vehicle. Facility provided for keeping plate while having food, reading and keeping water bottle. Additional to this alarm facility is provided to inform the attendee that there is a need of his / her presence to the patient. Validation of the prototype is done and usage is found satisfactory.



DESIGN AND ANALYSIS OF GREEN TROLLEY

- Bicycles and bikes are basically a form of the simplest transportation method that can be used by us to move from one place to another.
- So an invention has been created and it was an electric bike, basically using an electric motor and battery powered to replace the human energy and force.
- Compared to the normal bicycle, a battery powered electric bike delivers the travel distance at lowest possible cost compared to the one who pedals a bicycle and derives muscle energy from food.
- The task included is the fabrication and performances of the electric motor besides testing the battery. The result shows that the relationship between voltage and current is really significant in the power and speed produced by the electric motor that are really helpful in development of motor controllers later.



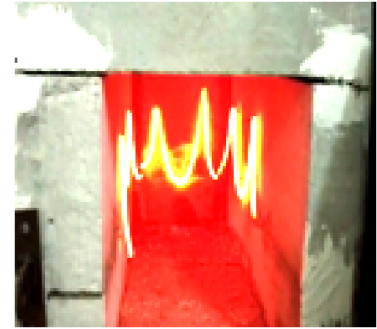
Battery Equipped E-Bike

- In the present days reducing pollution is an important criteria.
- In this project, the vehicle is Battery operated which produces no pollution at all. As the fuel price is increasing, scope for alternate energy is increased.
- In this vehicle the I.C. Engine is replaced with battery operated D.C. Motor with speed controller attachment which alters the voltage to the D.C. motor which results in change in speed. This vehicle is compact, less in weight, noise less and no pollution.



DESIGN AND FABRICATION OF MUFFLE FURNACE

- This work centres on the development of a low heat treatment furnace in accordance to the international electric equipment (IEE) regulations.
- Invoking the IEE regulations for materials selection and calculations for the construction of the furnace that matches the international standard.
- The final result gave a maximum temperature reading of 880 0 c in the furnace heating zone and 210 0 c temperature reading at the surface of the external casing after a period of 90minutes.
- The result obtained makes it possible to heat treat both ferrous, non-ferrous metals and their alloys in order to alter their microstructure and to enhance their properties.



DUAL OPERATING MACHINE

- This project is a multi function machine which can perform sawing as well as grinding.
- Belt drive is arranged to drive the grinder wheel and crank of the slider crank mechanism which is connected to the hacksaw frame.
 - Low production cost and high work rate is possible through the utilization of the multi-function operation which will require less power as well as less time.
 - Also the floor space required to set up this machine is also very less rather than setting up individual machines, the power consumption will also be reduced considerably.

COOLING HELMET BY USING PELTIER DEVICE

- It is mandatory to wear a helmet for safety while riding two wheelers.
- It is very difficult to wear helmets for the longer duration in summer due to high temperature rise and lack of ventilation which increases the stress level of the humans. The motorcyclist can be affected by temperature which results in loss of concentration.
- This project designs a new cooling helmet which is cooled by a thermoelectric module, thus achieving the simultaneous cooling of the human head.



Department of Mechanical Engineering

VISION

To be a reputed centre of excellence in the field of Mechanical Engineering by synergizing innovative technologies and research for the progress of society.

MISSION

M1: To impart quality education by means of state-of-the-art infrastructure.

M2: To involve in training and activities on leadership qualities and social responsibilities.

M3: To inculcate the habit of lifelong learning, practice professional ethics and serve the society.

M4: To establish industry- institute interaction for stakeholder development