KPRIET
LEARN BEYOND

BME NEWSLETTER

Vol 1, Sep 2020 Issue

CREATIVITY IS THE MASTER OF MIND
KPRIET
DEPARTMENT OF BIOMEDICAL ENGINEERING

Editor in Chief
Dr. D. Ganesh Kumar
HOD/Biomedical Engineering

List of Contents

Prepared by

S Sree Sanjanaa Bose, AP/BME

Newsletter coordinator

VISION

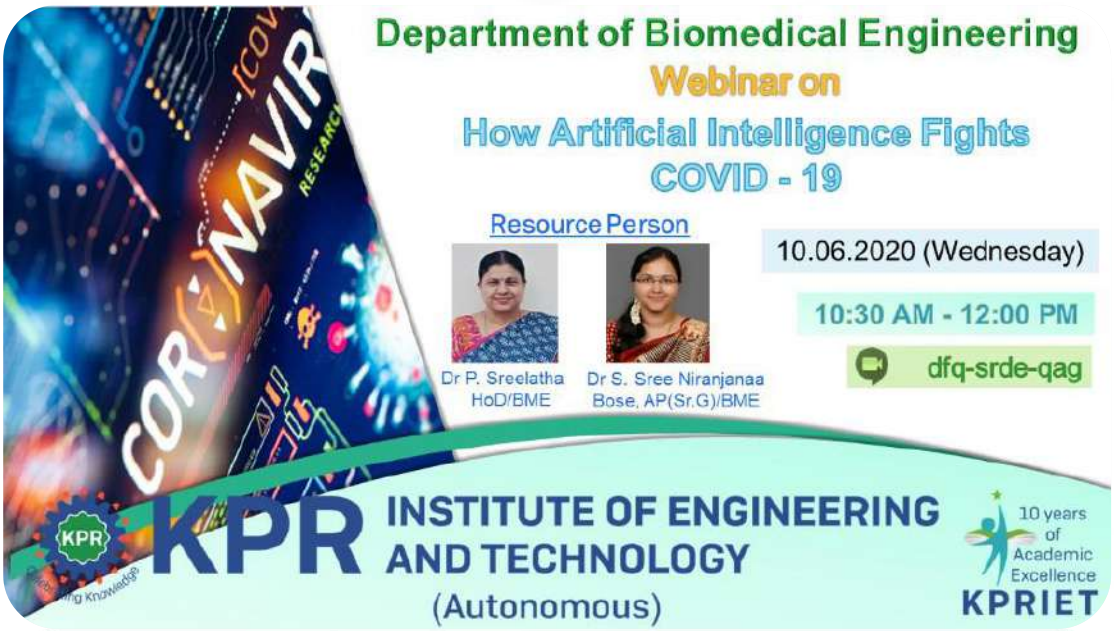
Be at the forefront in providing multidisciplinary education in engineering, technology and biological sciences, thereby providing our students, the future engineering professionals with the skills required to develop avant-garde devices and technologies to assist medical professionals in providing exceptional healthcare.

MISSION

The Mission of the Department is to

- Establish new teaching paradigms to converge biomedical engineering education to unveilcreativity and innovation in clinical health care.
- Build an integrated team of biomedical engineering community to nurture cutting-edgetechnologies through research and development.
- Collaborate and promote partnership with healthcare industry to enrich employability skills andbe in phase with their progress.
- Impart moral values, inculcate ethical behaviour and practice life-learning.

Webinar



How Artificial Intelligence fights Covid-19?

Dr. P. Sreelatha, Associate Professor
Dr. S. Sree Niranjanaa Bose, Assistant Professor(Sr.Gr)

10 June 2020

56 Participants

- **Various aspects of AI for solving life threatening problems**
- **Chatbot and its types, Importance of person tracing**
- **AI for study of genomics of virus.**

Webinar

Indoor Air Quality Maintenance and Improvement for cleanrooms in hospitals and laboratories

Mr. M. Maniventhan, Program Chair – ISHRAE Chennai Chapter, Director – Thermoflux Systems Pvt Ltd.

11 July 2020

270 Participants

- **Basics of HVAC**
- **Overview on Indoor Air Quality**
- **Certifications and standards related to healthcare facilities in laboratories.**

Webinar

Lung Sonogram and COVID-19

Dr. P. Sreelatha, Associate Professor
Ms. R. Rajeshwari, Assistant Professor

24 July 2020

100 Participants

- **Parameters of Lung Influencing Ultrasound Interaction.**
- **Ultrasound for COVID 19 -Probes, Placement, Scanning Modes.**
- **Understanding Lung Ultrasound Semiology.**

Webinar

Assistive Technology : A Pathway to Meaningful Engineering

Dr. Ramalatha Marimuthu, Board of Governors, IEEE Computer Society.

08 Aug 2020

95 Participants

- **The session completely focused on to inspire students to take up projects to improve the assistive technology for the common people.**

Webinar

Journey of a Cardiac Application Specialist in Skilling the healthcare Industry

Ms.Timple Sundaram, Application Specialist, Wipro GE, Bangalore

08 Aug 2020

92 Participants

- **Skills required for Gynac application specialist**
- **Internship and Research opportunities**
- **How to work along with cardiologists?**

Webinar

Testing and Troubleshooting of Medical Devices

Mr. Balaji Sreenivasan, Senior Biomedical Engineer, Velammal Medical College Hospital & Research Centre

15 Aug 2020

115 Participants

- **The calibration and troubleshooting of Medical Devices such as Pulse Oximeter, Defibrillator, Multipara monitor, ECG Machine, OT light, X-ray machine, CT scanner, Ultrasound scanner and Heart Lung machine was discussed.**

Webinar

Three day Student Development Program for Polytechnic Students

Mr. R. HariPrasad, Assistant Professor
Dr. Indira Devi.K, HOD(I&C), GRG Polytechnic College
Ms. Shanchana. S IV BME, Ms. Udhayanila .S ,IV BME

27,28,29 Aug 2020

167 Participants

- The insights of biomedical engineering after diploma in ECE/EEE/IE
- The job opportunities after biomedical engineering
- Importance of extra curricular activities was discussed.

Webinar

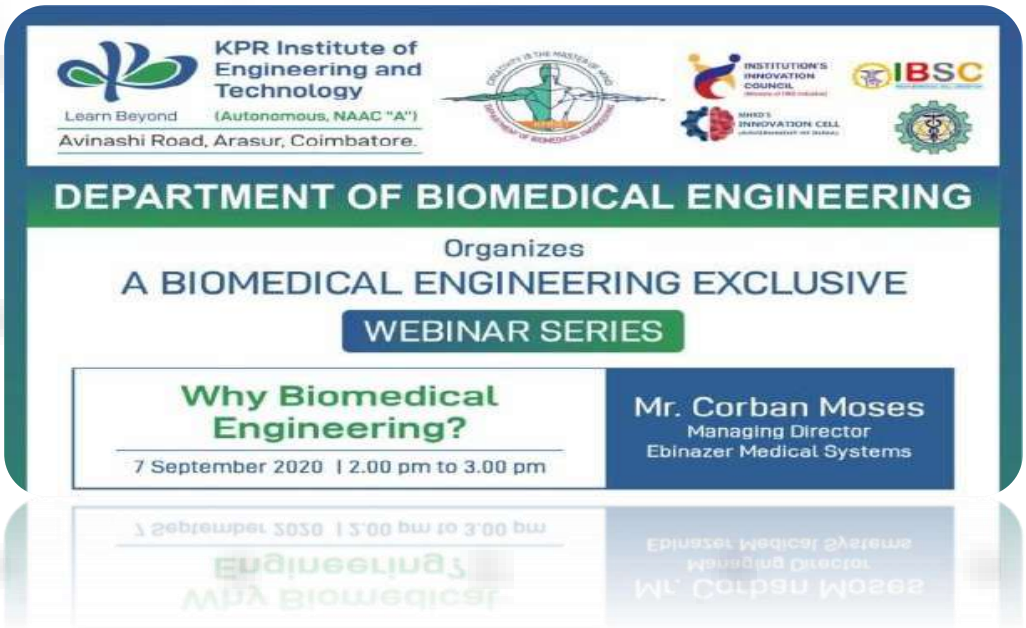
Insights of Applied Life Science and Health Care

Ms. Anusha R S, Clinical Data Analyst, Accenture Applied Life Sciences Solutions

05th Sep 2020

110 Participants

- **How Medical Engineering is different from Life-science**
- **State of the art of healthcare systems**
- **Parameters for a skilled engineer.**



Why Biomedical Engineering

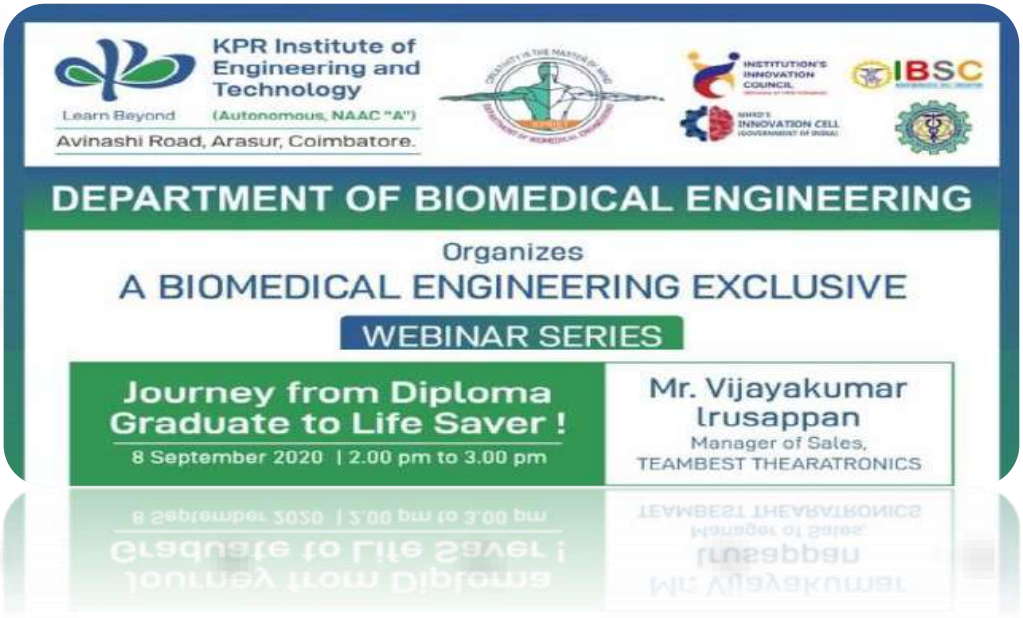
Mr.Corban Moses, Managing Director, Ebinezer Medical Systems

07th Sep 2020

47 Participants

- **The struggles faced in building a startup company.**
- **The need of a biomedical engineer in hospitals**
- **The field of engineering has evolved in healthcare sector , the usage of ultrasound machines**

Webinar



Journey from Diploma Graduate to Life Saver

Mr. Vijayakumar Irusappan, Manager of Sales, Teambest Theratronics

08th Sep 2020

60 Participants

- **Rewards and Opportunities of Biomedical Engineering**
- **Skills required for a diploma graduate for successful career**
- **Experience of career in sales of medical devices**

Webinar

Opportunities in the Field of Dentistry

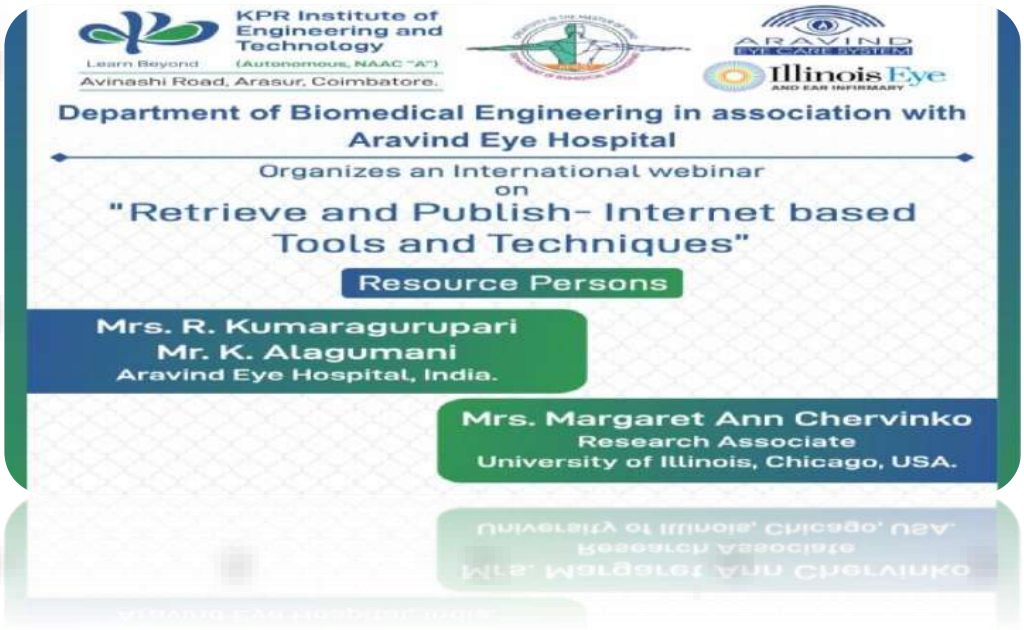
Mr.Karthik Kannan, Business Manager, Dental Imaging Systems, Chennai

09th Sep 2020

46 Participants

- **Skills required for Dental imaging specialist.**
- **Expectation from an imaging instrumentation perspective.**
- **Scenario in Indian market.**

Webinar



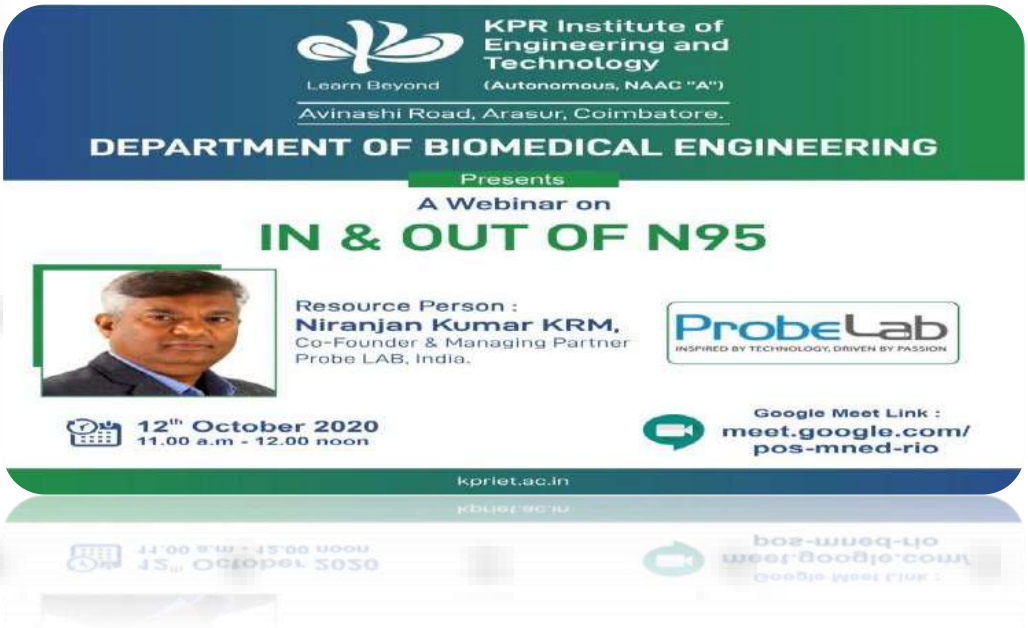
Retrieve and Publish- Internet based Tools and Techniques

Mrs. Margaret Ann Chervinko, Research Associate, University of Illinois, Chicago, USA
Mrs. R. Kumaragurupari & Mr. K. Alagumani, Aravind Eye Hospital, India.

06th Oct 2020

66 Participants

- **EIGENFACTOR.org , Quality Search of research paper**
- **Association of vision science library , Bibiliometrics**
- **To verify the credibility of a Journal**



IN and OUT of N95

Mr Niranjan Kumar, Co-Founder and Managing Partner, Probe Labs

12th Oct 2020

86 Participants

- **Basic materials required to manufacture masks**
- **The levels at which various masks can effectively filter the Corona Virus.**
- **The standards to be followed for manufacturing masks**

Webinar

Give Sight to all- Ensure all are Equal

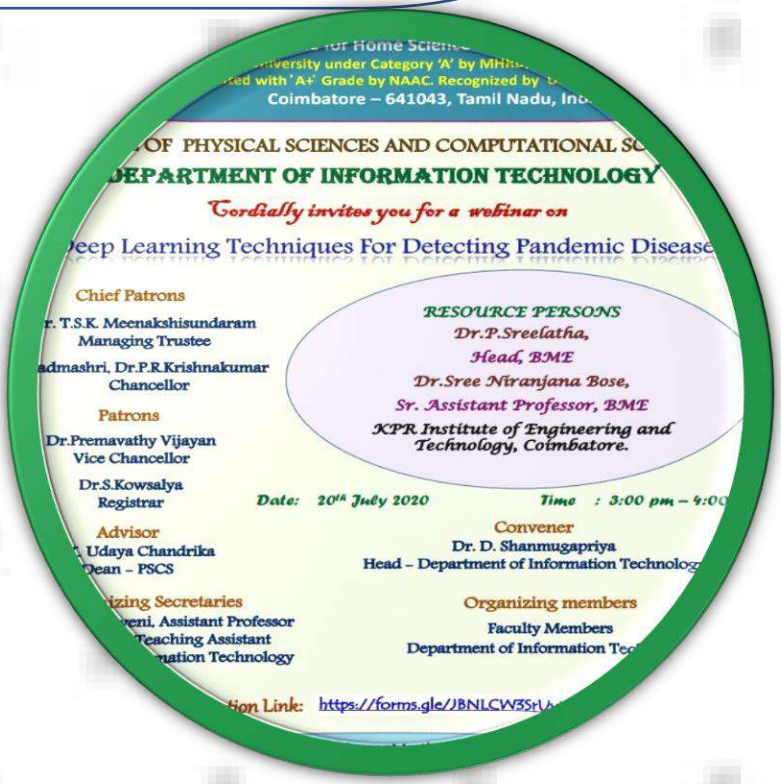
Ms. Sangeetha S, Manager- Administration, Aravind Eye Hospital, Coimbatore.

06th Nov 2020

50 Participants

- **There are 12 million blind and 200 million people who need eye care in India**
- **To create awareness among the public about free treatment on Corneal blindness**
- **Explained about various surgical procedures involved**

Academic Prowess



Dr. P. Sreelatha,Associate Professor

Dr. S. Sree Niranjanaa Bose, AP(Sr.Gr)

Deep Learning Techniques for detecting pandemic diseases

Avinashilingam Institute for Home Sciences and Higher education for Women

20 July 2020

Academic Prowess

Ms. D. Sudarvizhi,AP(Sr.Gr)

Wearable Technologies in Healthcare

Dr. NGP Institute of Technology

10th August 2020

Academic Prowess

Ms. D. Sudarvizhi,AP(Sr.Gr)

Advances in Computed Technology

Jerusalem College of Engineering

13th August 2020

Academic Prowess

HINDUSTHAN COLLEGE OF ENGINEERING AND TECHNOLOGY
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, Affiliated to Anna University, Chennai, Accredited with 'A' grade by NAAC)
COIMBATORE- 641032

DEPARTMENT OF BIOMEDICAL ENGINEERING

CERTIFICATE OF APPRECIATION

This is to certify that

Mrs. SUDARVIZHI. D , Senior Grade Assistant Professor, Biomedical Engineering From K.P.R. Institute of Engineering and Technology, Coimbatore has delivered an insightful Webinar In "Wearable Assitive Devices in Smart healthcare systems" on 30th September, 2020

DR. K. KARUNAKARAN

Ms. D. Sudarvizhi,AP(Sr.Gr)

Wearable Assistive Devices in Smart Health-care Systems

Hindusthan college of Engineering and Technology

30th September 2020

Academic Prowess

Ms. D. Sudarvizhi,AP(Sr.Gr)

Smart Wearable Technology in Healthcare systems

Velalar College of Engineering and Technology

14th October 2020

Book Publication

Communication Engineering

Dr. D. Ganesh Kumar,
Professor / Head,
Biomedical Engineering,
KPR Institute of Engineering and Technology.
Dr. V. Parimala,
Professor,
Electrical and Electronics Engineering,
P.A. College of Engineering and Technology.

Oct 2020, Charulatha Publications

Patent

An Automated IOT Based Solar Panelized Washing Machine

Dr. D. Ganesh Kumar,
Professor / Head,
Biomedical Engineering,
KPR Institute of Engineering and Technology.

Date of Filing: 03-12-2020
Status: Published

Application of Photoplethysmographic Signals for Anaesthesia Automation in Operation Theatres

A. Divya Bharathi T., Hariprasad R., Sree Niranjanaa Bose.S, Swathy M.

- Anaesthesia is a process of inducing coma to the patient who is undergoing a major or minor surgery. This is usually administered by Anesthesiologist at the time of the surgery and also continuously monitors the patient during the surgery and also after the surgery. Thus, without anesthesia and anesthesiologist, a patient can not undergo a surgery. This works deals with the process of atomization of administering anesthesia to the patient by using photoplethysmography (PPG) signals and temperature as input. PPG signal contains information like heart rate and oxygen saturation, using these it is possible to conclude if a patient is gaining consciousness from anesthesia. When PPG signal attains the threshold value, anesthesia circuit administers the required quantity of the drug. By using this concept, the process of administering anesthesia can be automatized for reducing the human errors and the pain endured by the patients.

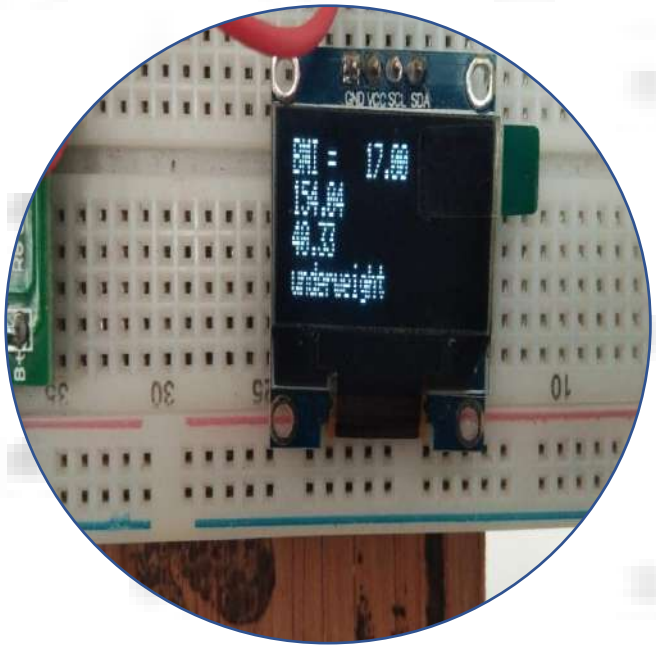
International Journal of Advanced Science and Technology
Vol no. 29
Issue No.4

Enhanced relative K based Numbering Out of Time Slices (erKNOTS) to locate epileptic seizure origin

Mr. A. Allwyn Gnanadas, Dr S Sathishbabu, Dr. M. Vijayakarthik, Mr. Shankar N

- Epilepsy is a cranial condition that is described by recurrent seizures. The abnormality is because of an unevenness in the grey region of the brain. This can be because of different reasons ranging from hereditary to various degree of damages to brain. The locale of impact shifts with patients relying upon the nature of affliction. Oral Medication though is viable in controlling the common seizures; however it's anything but a temporary fix. A compelling and long time arrangement is carefully identifying the affected region. The distinguishing proof of the presence of the seizure area helps the surgeon in restoring the specific uninfected region greatly. A novel strategy, Enhanced relative K based Numbering Out of Time Slices (erKNOTS) calculation is applied on the Resting state Functional Magnetic Resonance Image to recognize the inconsistency in the ordinary stream. The results are yielding and shows promising outcomes in defining the seizure affected region. The erKNOTS approves the results of Regional Homogeneity and Amplitude of Low Frequency Fluctuations

Solid State Technology
Vol no. 26
Issue No.6

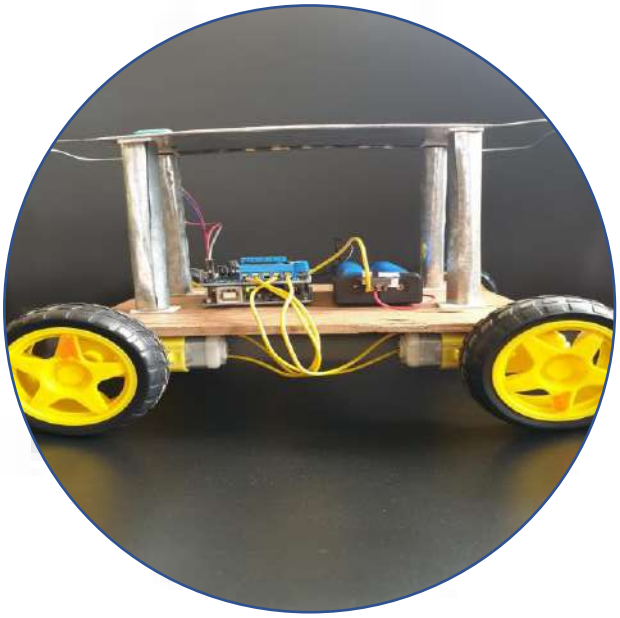


Supervisor: A.Allwyn Gnanadas, AP

Member: Subashini Priyanka.S / IV BME

The prevalence of covid-19 had its impact in the personal human fitness as well. This project is designed as a smart frame that could address a problem of measuring a human BMI without physically touching anything. The frame is assembled with load cells and ultrasound sensors to measure the height and weight of the individual. The BMI calculation is done on a simple AT328 microcontroller embedded on arduino board. A color display is connected to output the Height, Weight and BMI of the person when he stands on the frame. The display will also highlight the current BMI status of that individual.

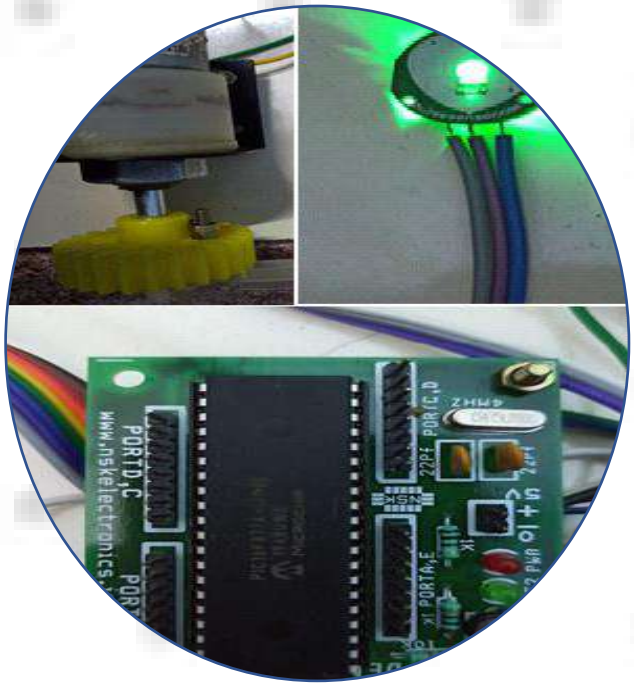
Automated BMI Frame



Supervisor:
A.Allwyn Gnanadas, AP
Member:
Subashini Priyanka.S /
IV BME

Covid-19, the novel Coronavirus spreads faster than what a human could even think while studying about it. As Biomedical engineers, with an engineering perspective to combat this contagious micro enemy, the team members came up with a solution that could safely transfer patients from the bay to the treatment area automatically without any human intervention. The patient from the reception will be guided to lie at comfort on the stretcher and will be taken to the preprogrammed location through a Bluetooth module.

Bluetooth controlled Stretcher



Supervisor:
Ms. Rajeshwari R, AP
Team Members:
Ms. Kiruthika S, IV BME,
Ms. Anusuya M, IV BME

In this project a microcontroller based automatic anaesthesia regularization system is developed so that the adequate amount of drug is injected in optimum level, which ensures the patient's safety. The drug is delivered depending on the sensors output. It can be used during surgery to ensure adequate and controlled flow of anaesthesia. The AC supply is given to the transformer. The heart rate and temperature are monitored continuously and the values are displayed on the LCD. The output of the sensors are given as the input to the microcontroller. The relay is also connected to the microcontroller. The LCD and the buzzer are the two outputs of the microcontroller. On the other hand, the motor runs with the help of relay and battery. The motor is finally connected to the syringe which delivers the drug depending on the rotation speed of the motor and the sensors output.

Automatic Anaesthesia Regularization System

Industry Connect

4 Days
- Dr. P. Sreelatha
- Aravind Eye Hospital,Coimbatore
- 26.09.2020 to 29.09.2020

7 Days
- Ms. R. Rajeshwari
- Silicon Systems,Coimbatore
- 26.09.2020 to 03.10.2020

7 Days
- Mr. V. Bharat
- Silicon Systems,Coimbatore
- 26.09.2020 to 03.10.2020

14 Days
- Ms. D. Sudarvizhi
- Royal Care Super Speciality Hospital
- 22.09.2020 to 04.10.2020

14 Days
- Ms. M. Swathy
- Thermoflux Pvt Ltd,Chennai
- 11.10.2020 to 28.11.2020

MOU With Aravind Eye Hospital

17th September 2020

- ✓ The MoU signing took place in the presence of Dr. P. Sreelatha, Associate professor, Mr Allwyn Associate professor, on behalf of KPRIET & Dr Narendran. V, Chief Medical IT officer Aravind Eye Hospital, Dr. Ram Mohan, Head Laboratory Aravind eye hospital.
- ✓ The objective of the MoU is to enhance the hospital experience for BME students, gain hands on experience in learning the operations of hospital equipment and also learn to apply the theoretical knowledge in developing new research avenues and equipment.

MOU With Silicon Systems

30th November 2020

- ✓ **The MoU signing took place in the presence of Dr. M. Akila, Principal, Dr. A. M. Natrajan , Chief Executive, Dr. D. GaneshKumar, HOD/BME and Mr. R. Balamurugesh CEO - Silicon Systems.**
- ✓ **In a view to enhance the industrial experience for BME students, gain hands on experience in learning the electronics equipments, learn to apply the theoretical knowledge in developing new research avenues and equipment this MoU has been initiated by the department of BME.**

Placement Achievements

KPR INSTITUTE OF ENGINEERING AND TECHNOLOGY
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Avinashi Road, Arasur, Coimbatore - 641 407
+91 422 2635600 | info@kpriet.ac.in | www.kpriet.ac.in

Department of Biomedical Engineering

Certificate of Appreciation

We wholeheartedly congratulate 2017 batch student of St.Joseph's Matric Higher Secondary School, Hosur currently pursing Biomedical Engineering at KPR Institute of Engineering and Technology for her successful placement in top company.

Sathya .V
Batch 2017 - 2021

Company : BSH Hausgerate GmbH
B/S/H

Salary : 4 – 5 Lakhs per annum

Admission Coordinators :
Sudarvizhi .D
Asst. Professor (SR.G)
9500760841
Bharath .V
Asst. Professor
9965390930

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Renuprasanth .A
Batch 2017 - 2021

Company : BSH Hausgerate GmbH
B/S/H

Salary : 4 – 5 Lakhs per annum

Admission Coordinators :
Sudarvizhi .D
Asst. Professor (SR.G)
9500760841
Bharath .V
Asst. Professor
9965390930

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Department of Biomedical Engineering

Certificate of Appreciation

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Udhaya nila .S
Batch 2017 - 2021

Company : BSH Hausgerate GmbH
B/S/H

Salary : 4 – 5 Lakhs per annum

Admission Coordinators :
Sudarvizhi .D
Asst. Professor (SR.G)
9500760841
Bharath .V
Asst. Professor
9965390930

Placement Achievements

Contests

*Dance Carnival Fest

*5th - 15th Jun 2020

*30 participants

*Talent Fest 2020

*5th - 12th Jun 2020

*32 participants

Celebrations

Saraswathi Pooja Celebration

Department Inauguration

Staff Club- Drama Series- Biomedical Department won 1st Prize