B.M.S College of Engineering
(Autonomous Institute under VTU)
Estd. 1946

# DEPARTMENT OF MEDICAL ELECTRONICS


IEEE POWER AND ENERGY SOCIETY
BANGALORE CHAPTER
BRANCH ADVISORS AND CHAIRS MEET

# SYNAPSE 2019

"The point where the greatest change seems to take place is at the synapses, but what this modification is, no one knows."
-George Drayton Strayer and Naomi Norsworthy.

Synapse is a collaborative effort of the faculty and students of Department of Medical Electronics, BMSCE.

Apt to the name of the magazine, this is an effort to connect all the details of the Department, activities, and achievements of the students and faculty.

The main aim of the magazine is to put together the Department's, students' and faculty's life, at BMSCE.

Dear readers,

Presenting to you , Synapse.

# CONTENTS:

# HELLO FROM THE TEAM

The responsibility of bringing out this edition of the department magazine was bestowed upon our shoulders.

Excitement levels were soaring, ideas were overflowing. With a lot of enthusiasm, we began the work; very eager to put out our ideas, and see them take form.

However, as the days went on, it dawned upon us, the herculean task we had taken upon.

A little shaken up, but determined, nevertheless, we began the mountainous effort of co-ordinating, acquiring, running amok, editing, approving, deciding, re-editing, and finalising—to come to this result, in your hands.

This magazine would not have seen the light of day, had it not been for the continuous support and encouragement from our Head of the Department, and the Chairperson of the magazine and also, for the co-operation, from our teachers. Thank you all for your support.

Without teamwork, there is nothing possible. That is one of the biggest lessons that we learnt throughout this period. There were a few testing times, but we managed to pull through with our head held high- a team effort! So, now, we leave you with these wise words from Professor Albus Dumbledore-

"Nitwit! Blubber! Oddment! Tweak!"


# THE TEAM:

**Abhishek M Appaji - Magazine Chairperson**

**Shruti G A - Editor in chief**

**Naina Somsundar- Editor**

**Sharadhi U Bharadwaj - Designer**

**Vishruth Cavale- Member**

**Medha B N -Member**

**Aishwarya H K-Member**

**Kiranmayee Bavanasi -Member**

**Meghna Kulkarni -Member**

**Suman S Murthy-Member**

**Anvitha A Rao-Member**

# ABOUT THE DEPARTMENT


The Department of Medical Electronics was established in 1992 to expand its academic horizon in the fast-growing field of healthcare technologies. Having batch strength of around thirty and with an experienced faculty. The focus to impart synergistic education in the field of medical electronics and life sciences to translate it into real world applications. The institution has thus been able to contribute a large pool of talented biomedical engineers into the industry. The department also hosts M.Tech in Biomedical Signal Processing and Instrumentation.

We believe that collaboration is everything. Thus, the department has various collaborations with major research institutes like Stanford University, Oxford University, Masstricht University, Indian Institute of Science, Narayana Nethralaya, Kempegowda Institute of Medical Sciences and many more.

# FACULTY

**DR. K. VIJAYALAXMI**-Professor and HOD

**DR. SUMA H.N**-Professor

**DR. JOSHI MANISHA S**-Professor

**DR.M.S.SUMA** – Professor

**Dr. S.B. BHANU PRASHANTH**-Professor

**Dr. ABHISHEK APPAJI M**-Assistant Professor

**Dr. BEENA ULLALA MATA B N**-Associate Professor

**Dr.R.KALPANA**-Associate Professor

**SIRASAPPA.Y.PATTAR**-Associate Professor

**Dr. NIRANJAN K R**-Assistant Professor

**ANANDATHIRTHA R.S**.-Instructor & I/c Foreman

**PANDURANGA KULKARNI**-Asst.Instr

**VENKATESH G.L.-**Instructor

**GUNESHWAR M**.-F.D.A.

**G P VANITHA**-Attender

The only place where success comes before work is in the dictionary.
-May Smith

# ACHIEVEMENTS

# Dr. S.B. BHANU PRASHANTH

**Professor**

- Recipient of Dr.APJ Abdul Kalam memorial-2018, Outstanding Teacher award from the ISBR of Bangalore Educational Trust.
- Best Paper award in the International conference on Networking, Embedded and Wireless systems ICNEWS-2018, BMSCE, 27-28 December, 2018.
- Class Topper in SSLC and M.Tech.
- First Prize winner in 'Kavithe-Prathibe' Kannada-Poetry competition on Udaya TV channel

## PUBLICATIONS:

- **Conference** | Published On : 07-03-2019
  N. Shesha Prasad, S.B. Bhanu Prashanth
  "A Study of UWB Microstrip Antenna Parameters for Wireless Applications" 2019 International Conference on Data Science and Communication (IconDSC), Christ University. March 2019.

- **Conference** | Published On : 28-12-2018
  N. Shesha Prasad, S.B. Bhanu Prashanth
  " Studies on Feed-dependent characteristics of patch antenna for wireless body area networks", Proceedings of International conference on Netoworking, Embedded and Wireless systems ICNEWS-2018, BMSCE, 27-28 December, 2018.
- Dr. S.B. Bhanu Prashanth, Professor, Department of Medical Electronics, delivered a talk on "Biosensors for Infectious Diseases" in the 2-day symposium on Recent Development in Infectious diseases – REDIND - 2019, organized jointly by the departments of Chemistry and Biotechnology, BMSCE
- Dr.S.B. Bhanu Prashanth, Professor & Head, Medical Electronics was invited to be Speaker and a Panel member in the one day workshop on "Participative Learning" at C.I.T, Gubbi.

# Dr. H. N. SUMA

Professor

- **Convener**: CIME (Center for Innovation in Medical Electronics).
- **Chief Convener**: Center for Innovation, Incubation & Entrepreneurship (CIIE)
- **Programme Director and SPOC**: Student satellite Project, BMSCE
- **TT Board Representation**: Melton Foundation, BMSCE
- **Chairman Library committee**, BMSCE
- **Doctoral committee member** - NIMHANS, Bangalore
- **Doctoral committee member** - BNMIT, Bangalore
- **Doctoral committee member** - UVCE, Bangalore

## Achievements:

- **Journal** | Published On : 18-04-2019
  S Guruprasad, MZ Kurian, HN Suma
  "PROBABILITY RANDOM INDEX BASED CLUSTERING FOR SEGMENTATION OF PET-CT IMAGES", Biomedical Engineering
- **Conference |** Published On : 08-07-2018
  Deepthi Badarinath, S Chaitra, Neha Bharill, Muhammad Tanveer, Mukesh Prasad, HN Suma, Abhishek M Appaji, Anand Vinekar
  "Study of Clinical Staging and Classification of Retinal Images for Retinopathy of Prematurity (ROP) Screening", International Joint Conference on Neural Networks (IJCNN)
- **Conference** | Published On : 14-12-2015
  S Guruprasad, MZ Kurian, HN Suma
  "Fusion of CT and PET medical images using hybrid algorithm DWT-DCT-PCA", 2nd International Conference on Information Science and Security (ICISS)
- **Conference** | Published On : 12-06-2015
  I V Accamma, H N Suma, M Dakshayini
  "A Genetic algorithm based feature selection technique for classification of multiple-subject fMRI data", IEEE International Advance Computing Conference (IACC)

# Dr. M.S. SUMA

Professor

- Student Counsellor
- Member of Sports Committee.
- VTU Exam coordinator.

**AWARDS:**

- Indo-Thai Academic Awards for Distinguished Professor at KU Home, Kasetsart University, Chatuchak, Bangkok, Thailand, September 2019.

- ESN Award 2019-Best Professor for outstanding excellence and remarkable achievements in the fields of Teaching, Research and Publications, September 2019.

## Publications:

- **Conference** | Published On : 29-08-2019
  Jisha P, M S Suma
  "Synthesis and Electrical Characterization of Protonic Acid Doped Polyaniline for Detection of Monoterpene Vapours to Diagnose Malaria" - IEEE Xplore

- **Journal** | Published On : 30-11-2018
  M Poornima, M S Suma
  "Fault Tolerant Parity Preserving Reversible Logic" - International Journal of Computer Sciences and Engineering , Vol.-6, Issue-11, Nov 2018

- **Conference** | Published On : 15-01-2018
  Chandrashekhar. V. Patii , M. S. Suma
  "Turtle base with fin perforated heat exchangers for the 2.5D and 3D IC structures" - IEEE Xplore

# SIRASAPPA.Y.PATTAR

Associate Professor

## PUBLICATIONS:

- **Conference** | Published On : 16-03-2019
  S.Y.Pattar
  A Novel approach towards iris segmentation and authentication presented at IEEE conference at Coimbatore on 16th of March 2019.
- **Journal** | Published On : 20-08-2017
  S.Y.Pattar,Ananth Padmanabha A.G
  1) Anantha Padmanabha A.G and S.Y.Pattar,"Textural Feature Extraction and Analysis for Brain Tumors using MRI" ", International Journal of Scientific and Research Publications, Volume 7 , Issue 8 2017, ISSN 2250-3153.
- **Journal** | Published On : 22-10-2015
  Pavithra .R,S.Y.Pattar
  2)Pavithra R, S.Y. Pattar Detection and Classification of Lung Disease – Pneumonia and Lung Cancer in Chest Radiology Using Artificial Neural Network,International Journal of Scientific and Research Publications, Volume 5, Issue 10, October 2015, ISSN 2250-3153
- **Journal** | Published On : 24-07-2015
  S.Y.Pattar, Akbar Ahamad
  3)S. Y. Pattar, Akbar Ahamad Efficient Extraction and Reconstruction of Foetal Electrocardiogram by Block Sparse Bayesian Learning, IJSRD,International Journal for Scientific Research& Development| Vol. 3, Issue07, 2015 ISSN (online): 2321-0613

# Dr. VIJAYALAKSHMI.K

## Professor and Head

- Life Member of Indian Society for Technical Education (ISTE)
- Life Member of Bio Medical Engineers Society of India (BMESI)
- I E EE M e m b e r /S e n i o r M e m b e r

**AWARDS**: Vijayalakshmi K ,Aishwarya S , Presented a paper 'Identification of Ultra High Frequency Components in ECG using Multilayer Neural Network'. in The International Conference on Cloud Computing in Emerging Markets, 2019 :Pre-conference Workshop held on 1st March'19 at The Oterra, Electronics City, Bengaluru.

## Publications:

- **Conference** | Published On : 13-08-2018
  Chandana.S ,Vijayalakshm.K
  "An Approach to Measure and Improve the Cognitive Capability of ADHD Affected Children Through EEG Signals," 2018 IEEE 18th International Conference on Advanced Learning Technologies (ICALT), Mumbai, 2018, pp. 314-318. doi: 10.1109/ICALT.2018.00079
- **Journal** | Published On : 01-06-2017
  Anitha T.G, K.Vijayalakshmi,
  "Design of Novel FFT Based Image Compression Algorithms and Architectures", International Journal of Progressive Sciences and Technologies (IJPSAT), Vol. 5 No. 1 ,June 2017, pp. 24-42, ISSN: 2509-0119.
- Dr Vijayalakshmi.K, Associate Professor, Dept. of Medical Electronics," presented a paper on "An Approach to Measure and Improve the Cognitive Capability of ADHD Affected Children through EEG Signals", at 2018 IEEE 18th International Conference on Advanced Learning Technologies, at IIT Bombay held between 9th July to 13th July 2018.
- Dr. S.B. Bhanu Prashanth, Professor, and Dr. K. Vijayalakshmi, Professor from the department of Medical electronics were invited to be members of the panel of judges during the 'Engineering Fair' at Visvesvaraya Industrial & Technological Museum, Bangalore.

# Dr. BEENA ULLALA MATA B N

Associate Professor

- Life Member of professional bodies such as ISTE, IE and BMESI.
- Organized more than 5-7 workshop at BMSCE, Bangalore.
- Participated in more than 25-30 workshops/FDP conducted at various colleges in India.
- Was one of the Jury to VII SEM students Project Work Exhibition and Chair to paper presentation organized at Dr AIT, Bangalore in the year 2018.

## Publications

- **Conference** | Published On : 08-11-2019
  Beena Ullala Mata B N, M. Meenakshi, Niranjan K R
  22nd National Symposium on Radiation Physics (NSRP-22), Convention Centre, Jawaharlal Nehru University, New Delhi, "Breast cancer detection before radiotherapy"
- **Journal |** Published On : 11-11-2018
  Beena Ullala Mata B N, M. Meenakshi
  International Journal of Advances in Wireless and Mobile Communications, "Comparison of k-NN & Naïve Bayes Classifier for the Abnormality Detection of Mammogram Images".
- **Journal** | Published On : 01-07-2018
  Beena Ullala Mata B N, M. Meenakshi
  Bonfring International Journal of Advanced Image Processing, "Mammogram Image segmentation by Water Shed Algorithm and Classification through K-NN Classifier".
- **Journal** | Published On : 20-06-2018
  Beena Ullala Mata B N, M. Meenakshi
  International Journal of Computer and Mathematical Sciences, ""Novel Segmentation of Breast Parenchymal Tissue for Mammograms and its Classification using Neural Networks"

# Dr.R.KALPANA

## Associate Professor

- Life member of Indian Society for Technical Education
- Biomedical Engineering Society of India, L 561
- One of the members of panel of examiners/ paper setter/ valuator in the board of VTU from the past 12years.
- IEEE member
- IETE fellow

## Publications

- **Conference** | Published On : 08-03-2019
  Kalpana.R,Sai krishna,Nihar.jajodia
  Presented paper on "HRV ANALYSIS ON YOGA TECHNIQUES" National Conference on Innovations in Electrical Power and Energy Systems (NCIEPES) on 8th March 2019 in M. Kumarasamy College of Engineering, Karur.
- **Conference** | Published On : 08-03-2019
  Kalpana.R,Sai krishna,Nihar.jajodia
  Presented paper on "Continuous Ambulatory Recording of the Electrocardiogram " National Conference on Innovations in Electrical Power and Energy Systems (NCIEPES) on 8th March 2019 in M. Kumarasamy College of Engineering, Karur.
- **Conference** | Published On : 08-11-2018
  Jahnavi B Gowri, Khadija Adil, Kalpana R
  Jahnavi B Gowri, Khadija Adil, Kalpana R National conference on Ultrasonic Navigation System for the Visually Impaired on nov 8th, 2018, at Dr.AIT, Karnataka.
- **Journal |** Published On : 28-12-2016
  Kalpana, R Gnanambal, I
  Kalpana, R & Gnanambal, I 2016, ‘Study of two Common Brain Is orders using Statistical Parameters’, Int. J. Chem. Sci., vol. 14,no. 3, pp. 1251-1262, ISSN 0972-768X

# DR. JOSHI MANISHA S

Professor

## Recognition/Awards:

1. Session Chair ICERECT 2018 PES College of Engineering, Mandya
2. SAP (Startup Accelerator Program) Top performer award by IIT-Bombay (IITB) in faculty development program on ‘Use of ICT in Education for Online and Blended Learning’ October 2016
3. Karnataka State Innovation Council Award ‘Amulya 2012 ‘ for innovation in Healthcare
4. Session Chair IEEE IACC 2015, Bangalore
5. Microsoft Certified Educator (2015)
6. Completed Internationally Certified Educator Certification course under Indo-US Collaboration (2015)

## Publications

- **Journal** | Published On : 01-12-2019
  B G Sudha, V Umadevi, Joshi Manisha Shivaram, Mohamed Yacin Sikkandar, Belehalli Pavan, Abdullah Al Amoudi
  Diabetic Foot Risk Classification using Decision Tree and Bio-Inspired Evolutionary Algorithms”, International Journal of Innovative Technology and Exploring Engineering (IJITEE) ISSN: 2278-3075
- **Journa**l | Published On : 09-09-2019
  Hidangmayum Bebina, Joshi Manisha Shivaram , Aradhana Katke , Umadevi V,
  “Bilateral Breast Geometry Analysis –A Preliminary Tool for Detection of Breast Abnormality”, International Journal of Computer Sciences and Engineering, Vol.-7, Issue-9, Sept 2019
- **Book Chapter or Books** | Published On : 12-12-2018
  Sudha Bandalakunta Gururajarao, Umadevi Venkatappa, Joshi ManishaShivaram, Mohamed Yacin Sikkandar, Abdullah Al Amoudi
  Book chapter titled, “Infrared Thermography and Soft Computing for Diabetic Foot Assessment” , published under the book titled “Machine Learning in Bio Signal Analysis and Diagnostic Imaging” , Chapter 4, published by Elsevier Academic Press, 12th Dec 2018

# Dr. NIRANJAN K R

Assistant Professor

## PUBLICATIONS:

- **Conference** | Published On : 08-11-2019
  Niranjan KR
  Breast Cancer detection before Radiotherapy. 22nd National Symposium on Radiation Physics
- **Conference** | Published On : 26-04-2019
  Niranjan KR
  Clinical analysis and data assessment for tremors. National conference on Advances in data science & engineering application
- **Conference** | Published On : 08-02-2018
  Niranjan KR
  Real time foot pressure distribution monitoring system for diabetic foot neuropathic patients, National Conference on Advances in Data science and
- **Journal** | Published On : 22-02-2017
  Niranjan KR
  An IP based Patient Monitoring smart system in Hospitals. International journal for scientific Research and development (IJSRD). Volume 4 issue 12 in February 2017. Online issn: 23210613
- **Journal** | Published On : 25-02-2016
  Niranjan KR
  Electro-encephalogram (EEG) Signal Acquisition, Analysis and Alert System for Epilepsy. International journal for scientific Research and development (IJSRD) Volume 3 issue 12 in feb 2016 e- journal Online ISSN-23210613

# Dr. ABHISHEK APPAJI M

## Associate Professor

- Board Member, COMSNETS Association from 2019

## Awards:

- Best Poster Award at IEEE SPS Winter School on Biomedical Signal and Image Processing held at RIT during 12 to 14 Nov 2019.
- IEEE R10 (Asia Pacific) Young Professionals Outstanding Volunteer in Academic Award in recognition for outstanding contributions & services to YP academic program and to the IEEE Bangalore Section in Sept 2019.
- Outstanding service to 11th IEEE COMSNETS International Conference 2019 during 7th to 11th January 2019.
- Best Poster Award at 16th REV Conference held from 03–06 February 2019 at BMSCE Bangalore.

## Publications:

- **Journal** | Published On : 26-08-2019
  Appaji A, Bhargavi Nagendra, Dona Maria Chako, Ananth Padmanabha, Arpitha Jacob, Chaitra V Hiremath, Shivarama Varambally, Muralidharan Kesavan, Ganesan Venkatasubramanian, Shyam Vasudeva Rao, Carroll A.B. Webers, Tos T.J.M. Berendschot, Naren P. Rao
  Retinal vascular tortuosity in schizophrenia and bipolar disorder. Schizophrenia Research, 212, 26-32, 2019.
- **Journal** | Published On : 19-08-2019
  Appaji A, Bhargavi Nagendra, Dona Maria Chako, Ananth Padmanabha, Arpitha Jacob, Chaitra V Hiremath, Shivarama Varambally, Muralidharan Kesavan, Ganesan Venkatasubramanian, Shyam Vasudeva Rao, Carroll A.B. Webers, Tos T.J.M. Berendschot, Naren P. Rao
  Retinal Vascular Fractal Dimension In Bipolar Disorder And Schizophrenia. Journal of affective disorders., 259, 98-103, 2019.
- **Journal** | Published On : 10-08-2019
  Appaji A, Bhargavi Nagendra, Dona Maria Chako, Ananth Padmanabha, Arpitha Jacob, Chaitra V Hiremath, Shivarama Varambally, Muralidharan Kesavan, Ganesan Venkatasubramanian, Shyam Vasudeva Rao, Carroll A.B. Webers, Tos T.J.M. Berendschot, Naren P. Rao
  Examination of Retinal Vascular Trajectory in Schizophrenia and Bipolar Disorder. Psychiatry and clinical neurosciences, 73 (12), 738-744, 2019
- **Journal** | Published On : 11-07-2019
  Alagumalai, V., Kadambi, P, & Appaji, A.
  Interdisciplinarity in New Product Development in an Indian MedTech Perspective: Gap and the Solution. Health and Technology, 9(5), 817-827, 2019.

# CIME

Centre for Innovation in Medical Electronics (CIME) is an entity focusing on affordable healthcare and deskilling in Medical Device Development. It was inaugurated in February 2015. This houses Incubation Centre, Patent Office, Grant office, etc., and contains a collaboration with industries, institutions, and hospitals in India and around the world. It drives students and faculties towards entrepreneurship.

It currently has few incubates working on Digital X-Ray, Vertigo Balance Disorder (Cyclops) and projects like Smart Eye Kiosk for Community Screening, Intrapartum Maternal Fetal Healthcare Device, etc. It helps in identifying, building and nurturing the projects into ventures and aids in building partnerships with different institutions, industries, hospitals and funding institutes. CIME Incubates has grants from DST, DBT and other government agencies of India and abroad.

CIME has a pool of mentors, Dr Purna Prasad, Dr Shyam Vasudeva Rao,
Dr Gundu Rao, Dr Lazer Mathew, Dr K N Bhanu Prakash, and few others as experts.

# 1. SMART EYE KIOSK:

Currently, eye screening for capturing retinal and corneal images is done manually using devices that need an operator (physician) during the entire process of screening and testing. This can sometimes be tedious and cumbersome. So, it will be very useful if a device is developed, that automatically screens the eye, captures images and readings and requires doctor's assistance only for final diagnosis. This is exactly what one of the teams in CIME is working on.
Smart Eye Kiosk is an automatic eye screening device that solves this problem. Here is an interview that gives deeper insight to this project and the team working on it.

## TEAM MEMBERS:

Dr Bharat Kumar Hegde
Vijayashri B Nagavi
Rashmi Jigajinni
Umashankar K R

**DURATION OF THE PROJECT: 2 YEARS**

Q. What was the inspiration for this project?
.A. There is no equipment in the world for a comprehensive automated eye screening, which can capture both retinal & corneal images, as well as, provide refractive errors. Existing devices are all manually operated, which requires a skilled operator. So, we took up this project to automate the process and reduce errors.

Q. What kind of project is this?
A. This is a collaborative project between Tan Tock Seng Hospital (TTSH), Nanyang Technological University and BMS College of Engineering. We were responsible for the complete prototype development, which mainly involved substantial efforts in image processing and automation. The project till proof of concept stage was incubated in Centre for Innovation in Medical Electronics (CIME). The device has been shipped to TTSH-Singapore, for clinical validation. The project was carried out under the able mentorship of Dr Shyam Vasudeva Rao.

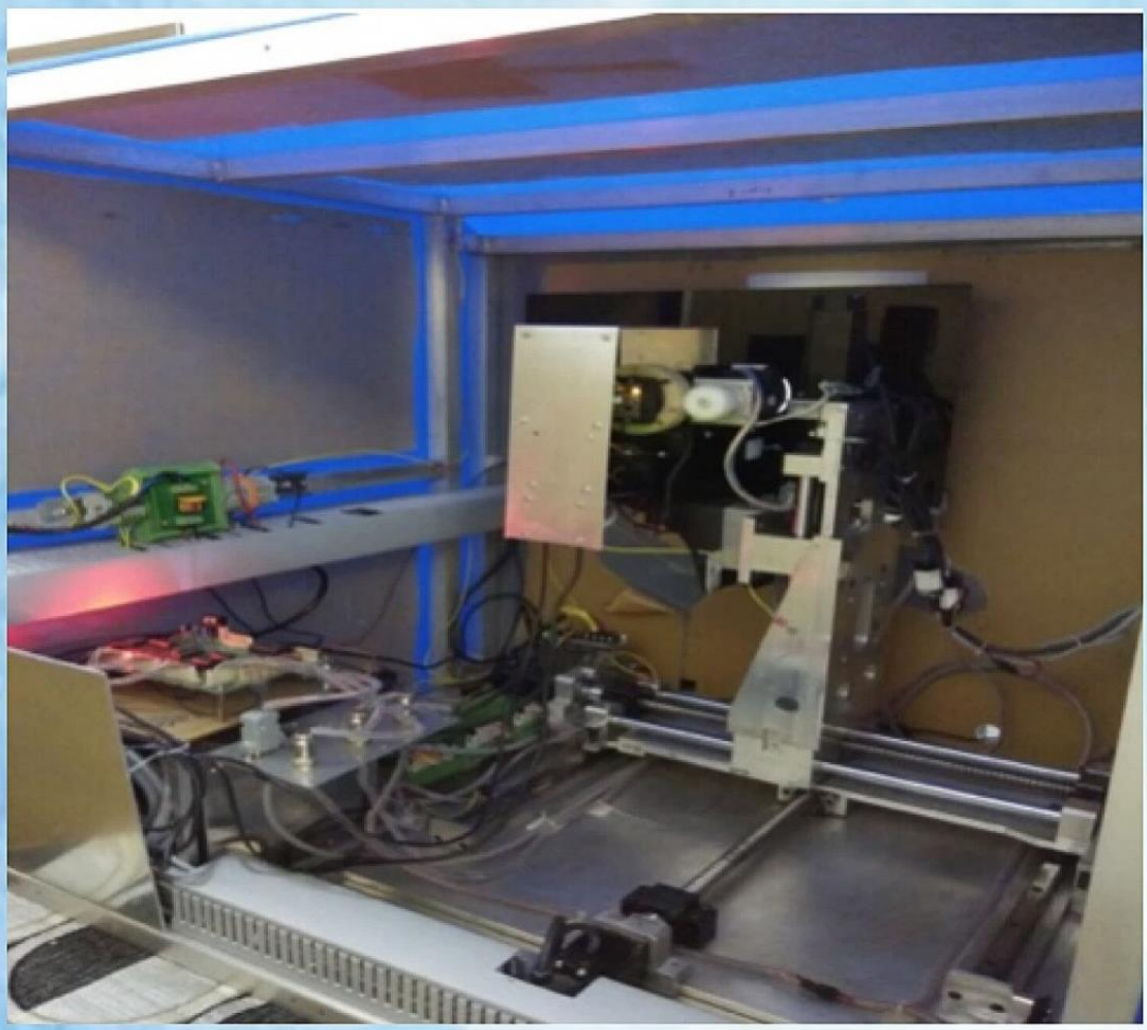
Q. What is the electronics used in this device?
A. The master controller of this device is hosted on a laptop which also acts as a Human Machine Interface (HMI). Based on the real time image feedback, the servo motors were controlled using Arduino Mega 2560 controller. The mode of communication between the camera, laptop and microcontroller was through serial port. An optical encoder was used as a position feedback of the motor. The extreme ends of each of the axes were detected using limit switches. The interface between motor drives, limit switches and microcontroller was implemented on a two layer PCB.

Q. What are the advantages of this device?
A. This is the first ever comprehensive automated eye screening device. Being a non-mydriatic, all-in-one device (without external pupil dilation), it brings down the overall duration of the eye screening from more than an hour, to a mere 5 minutes. The screening is assisted with real-time audio commands at every step. The accuracy of the refractive error measurement is comparable to the existing auto-refractometers. The advanced tele-ophthalmology enables the clinician to be able diagnose the patients remotely, for all possible anomalies like glaucoma, cataract, diabetic retinopathy and age-related macular degeneration. While being fully automatic, it can also be controlled manually by an operator, if the patient is not comfortable using HMI. The device can also be used for patients with squint eyes.

# 1.SMART EYE KIOSK

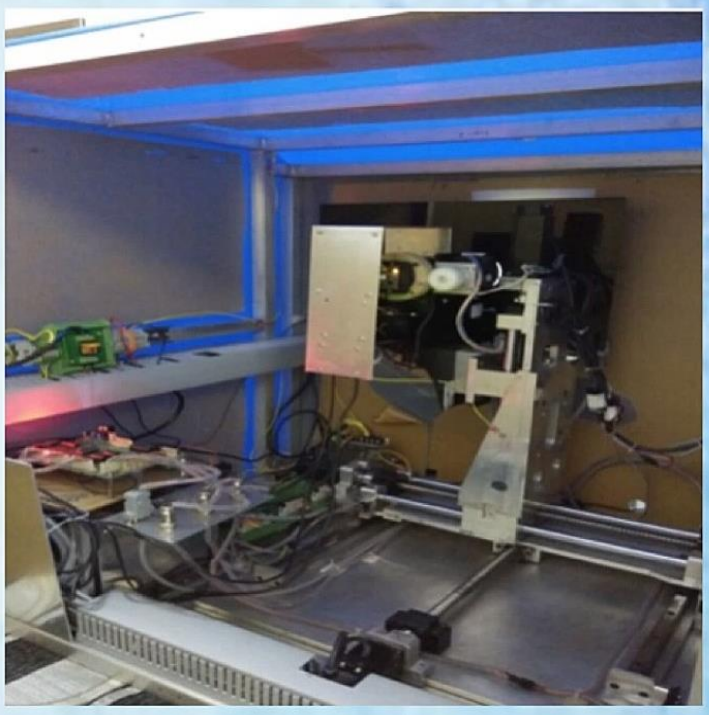
Q. What is the working principle of the device?

A. The device operates on the concept of image guided automation. The device calculates Inter-pupillary distance and refractive error. It also captures posterior and anterior images of the eye without dilating the pupil externally (non-mydriatic). The posterior and anterior images of the eye is captured using Autofocus and Auto Capture Technique. The device generates a pdf report including all the images and readings. The screening data is automatically uploaded to a dedicated web portal. Registered doctors can login to this web portal remotely and can access the data generated by the device with a provision to view individual images. The report along with the doctor's diagnosis will be mailed automatically to the email address provided by the patient.



Q. What are the disadvantages of this device?

A. One of the major disadvantages is the limit of minimum pupil diameter. The device will not be able to take a good fundus image for the patients with pupil diameter less than 3mm. Being a fully automatic device, it demands a greater extent of cooperation from the patients during the entire duration of screening. With existing sequence of automation, it sometimes is difficult to get a fundus image for patients with dry eye or with intra-ocular lenses.



Q. Are you working on any other device to overcome the shortcomings of the present one?

A. We are working on the automation sequence to be able to do the fundus imaging irrespective of corneal conditions. Innovative optical design methods are being tried out to bring down the limit of minimum pupil diameter required for posterior imaging. We are also working towards making the next device better in terms of cost, compactness, usability and appearance.

SAMPLE REPORT GENERATED BY THE DEVICE

Smart Eye Kiosk

# REPORT

BMSCE, Bengaluru

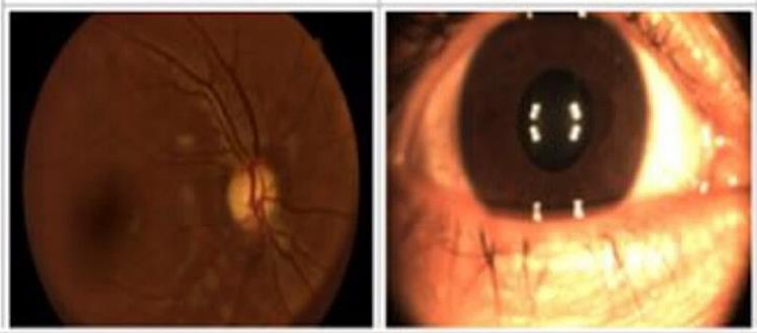
| VISITOR DETAILS | | | |
|---|---|---|---|
| DATE : | 08-12-2017 | GENDER : | M |
| FIRST NAME : | B | AGE : | 30 |
| LAST NAME : | H | EMAIL ID : | bharathkumar.hegde@gmail.com |
| VISITOR ID : | 20171208-115206 | PHONE NUMBER : | 1 |

## OCULAR FINDINGS

| INTER PUPILLARY DISTANCE (IPD) : | 51.7 mm |
|---|---|

### OD (RIGHT EYE)

Posterior Segment | Anterior Segment

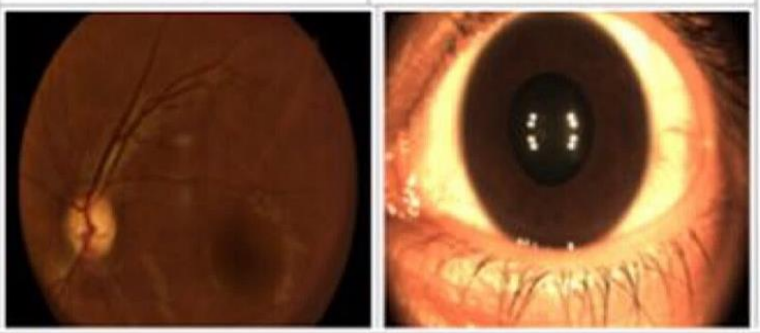


*AUTO - REFRACTION*

| | SPHERICAL (D) | CYLINDRICAL (D) | AXIS (deg) |
|---|---|---|---|
| DISTANCE VISION | 0.5 | -2.75 | 12 |

### OS (LEFT EYE)

Posterior Segment | Anterior Segment



*AUTO - REFRACTION*

| | SPHERICAL (D) | CYLINDRICAL (D) | AXIS (deg) |
|---|---|---|---|
| DISTANCE VISION | 0.5 | -1 | 17 |

Screening duration = 3 minutes 19 seconds

Send your feedback to: smart.eye.kiosk@gmail.com

# 2. SASCAN

The mortality rate due to oral cancer is very high in India. This is mainly because the disease is getting detected mostly during the late stage of its development. So, there is a need for development of a screening device that could detect cancer early, which would lead to improved patient care with minimal cost, trauma or functional deficits. The SASCAN MEDITECH Pvt Ltd team has put their foot forward in this direction and are developing a device that solves this problem. Let us get to know more about their venture in this field.

SASCAN DEVICE

## TEAM MEMBERS:

**Core team:**

**Dr. Subhash Narayanan,** MSc, Ph. D. (Founder CTO & Acting CEO)

**Dr. Ruhi Agarwala,** MBBS, MSc (Global health) (Co-Founder & Public Health Expert)

**Sandeep P.M.**, B. E. (Senior Software Engineer)

**Priyanka Deshmukh**, M Tech (Med. Elect) - Junior Hardware Engineer

**Vinay Palaksha,** B.E. (Junior Software Engineer – Testing & Quality Control)

**Advisors:**

**Dr. Shyam Vasudev Rao**, MTech, PhD. (Mentor)

**Dr. K. S. Gopinath**, MS, FRCS, FAMS (Collaborating Surgical Oncologist)

**Dr. Vishal Rao**, MBBS, M S (Surgery) (Collaborating Head & Neck Oncologist)

**Dr Suchetha Jyotish**, MD (OBG), DGO, (Collaborating Gynaecologist)

**DURATION OF PROJECT : 2 YEARS**

Q. What is the aim of this project?
A. The aim of this project is to develop a hand-held and portable screening device, based on a disruptive multimodal/multispectral imaging technology, combining tissue fluorescence, diffuse reflectance and oxyhaemoglobin absorption for oral cancer detection.


Q. Who is funding this project?
A. This project is funded under the BIG scheme of the Government of India (BIRAC) and Elevate 100 of the Government of Karnataka. The company has won the iPitch 2018, contest conducted by Villgro Innovations and their support would help the company in creating an impact through mass screening of population in the rural areas, where the incidence rates of oral cancer are high.

Q. What are the novelty points of your device?
A. 1. World's first integration of a camera in a multimodal oral cancer imaging device
2. Affordable and easy to use
3. Functions as a biopsy guidance tool
4. Grades cancer with the help of a machine learning algorithm
5.Adaptable for screening of other organs like cervix, GI tract and colon

Q. What is the principle used for this device?
A. The oxygen we inhale is transported to different parts of the body by haemoglobin, in the form of Oxygenated Haemoglobin(HbO2).The absorption due to HbO2 is lower in cancer cells as compared to healthy cells of the body.In this device we monitor the changes in the HbO2 saturation using multispectral optical imaging techniques and arrive at signs that help in early detection of cancer.

The main principle is that during tissue transformation towards malignancy, many biochemical and morphological changes are observed in the tissue. The biochemical changes are identified using tissue fluorescence. Morphological changes occur due to enlargement of nucleus, which leads to increased scattering of the light and a lowering of the intensity of the diffusely reflected light emanating from the tissue after multiple elastic scattering.


AWARD WON BY THE TEAM

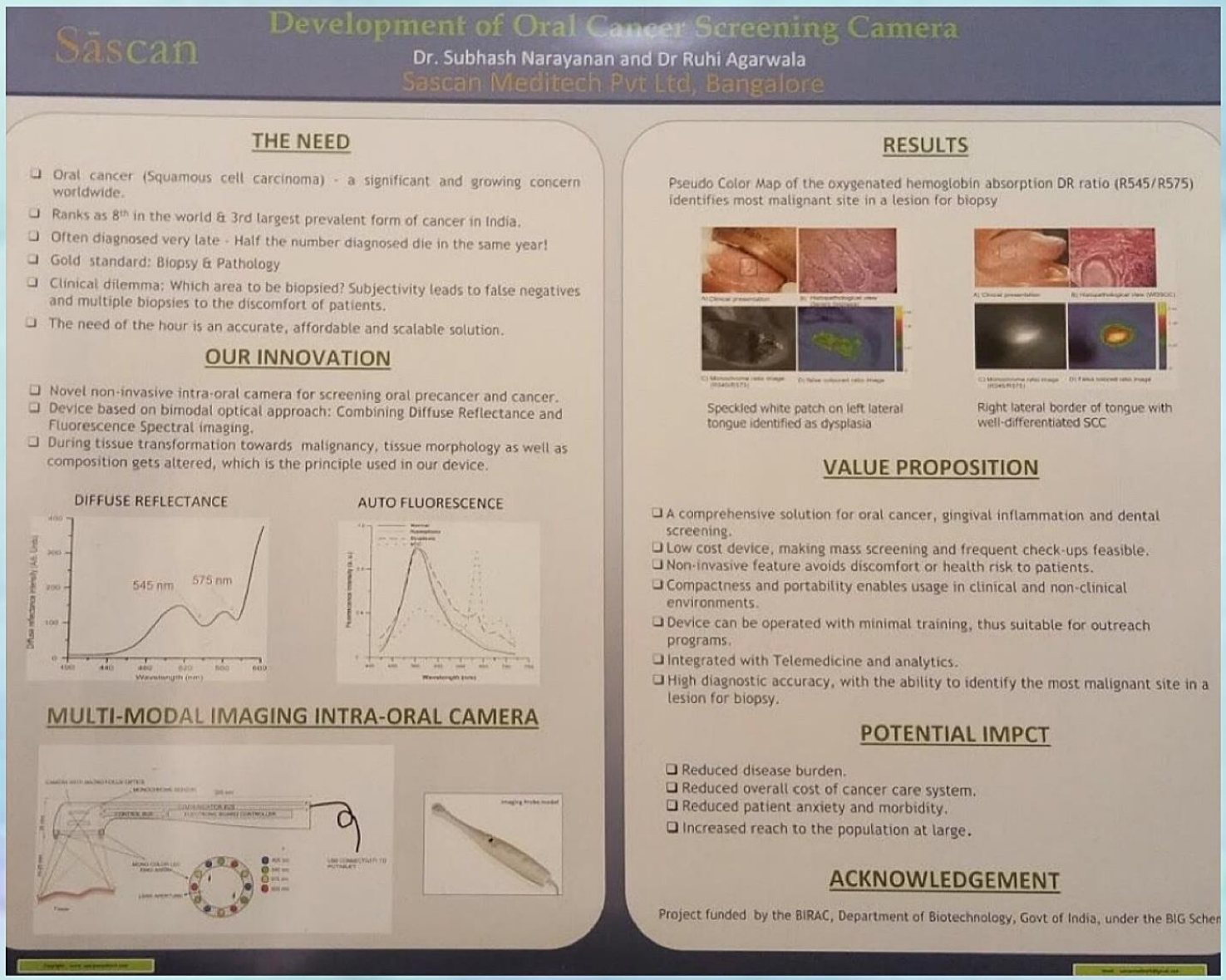
Q. Explain the working of the device?
A. The device has multiple LEDs that emit different wavelengths matching with the tissue absorbers and a monochrome camera to capture the diffusely reflected light and tissue fluorescence synchronously on illumination with different LEDs. The captured images are processed and the pseudo colour maps of diffuse reflectance image ratios and fluorescence are used to detect the presence of cancer inside the oral cavity. The quantitative values of image ratios are compared/ correlated with pathological findings to develop an algorithm that helps to detect the grade of cancer at the point of care, in real time.

Q. At what stage can this device detect cancer?
A. The device can detect cancer cells in the pre-cancer stage, which makes it one of a kind in India.

Q. What is the electronics used in this device?
A. DeMUX, MOSFET driven driver circuits, LEDs and CMoS sensor are the main electronic components used in this device.

Q. What is the current status of your project?
A. The device is currently undergoing clinical validation through a multicentric trial covering hospitals like Health Care Global (HCG), and Dayanand Sagar Dental College, in Bangalore and Government Dental College in Kottayam, Kerala.

Q. Are there any improvisations that you would like to make in the device?
A. Yes. We are working towards making this smartphone compatible.



# 3.A. INTRAPARTUM MATERNOFETAL CARE

The devices currently used in India, for intrapartum maternofoetal heart rate monitoring purpose are expensive and thus cannot be afforded by Primary Healthcare Centres. Such facility is therefore not available in rural areas. It is high time that a low cost, reliable, and portable device be developed to solve this problem. A team at CIME is exploring this area of healthcare and trying to solve this issue by developing a low cost, reliable and portable device. In the following 2 interviews we have explored the research undertaken in this regard.

## TEAM MEMBERS:

Ms.Vichal
Mr.Brijesh

**DURATION OF PROJECT : 2 YEARS**

Q. What is the procedure you followed during the development of this device?
A. We conducted extensive clinical research through clinical immersion for 7 weeks in Kempegowda Institute of Medical Sciences (KIMS) and MS Ramaiah Hospital.

Q. Who is funding this project?
A. This project is funded by SRISTI-BIRAC (Biotechnology Industry Research Assistance Council).

Q. Explain the principle and working of this device?
A. This device works on the 'Adaptive Noise Cancellation' principle. The electrodes are placed on the chest to record the maternal ECG and another pair of electrodes are placed on the abdomen to record foetal ECG. The chest electrode signals include maternal ECG and some noise and the abdomen electrode signals include foetal ECG, maternal ECG and noise. Noise cancellation technique is used to obtain only the foetal ECG.

Q. What is the hardware and software used in this project?
A. MATLAB is used as platform for code development.
STM 32 development board was used for individual component analysis, initial testing and data acquisition. In the final prototype ARM7 processor is being used.
Ag-AgCl surfaces electrodes are used for data acquisition.

Q. What are the advantages of this device?
A. This device is portable, reliable and has low cost, which is very feasible for usage in rural areas. It records the uterine contractions every half hour. It records and displays both maternal and foetal ECG.

# 3.B. RAPID AND ACCURATE BILIRUBIN MEASUREMENT DEVICE FOR DIAGNOSIS OF NEONATAL HYPERBILIRUBIN

Q. What was the inspiration for this project?
A. Neonatal Jaundice is very common. About 60 to 80 percent of infants are affected. Most of the cases are physiological, while few of them are pathological. The current techniques have quite a few drawbacks. So we planned to develop a device that uses only few drops of blood to give instant results, which is at par with the laboratory report values.

Q. What is the aim of this project?
A. The aim of this project is to develop a minimally invasive device for quick and accurate measurement of the bilirubin levels in infants for instant detection of jaundice.

Q. What are the existing techniques and what are their drawbacks?
A. There are currently 2 techniques used- Laboratory technique and Transcutaneous technique.
In the laboratory technique, blood is drawn to measure the serum bilirubin level in it. The main drawback of this technique is the difficulty in finding a feasible vein in infants, as the veins are very sensitive in them. Also, the volume of blood required is significantly more.
In the transcutaneous technique, the yellowness of the skin is measured to determine the presence of jaundice. The treatment for jaundice is phototherapy (in which UV rays is used). But once this is done, the correlation between the blood and the skin is lost. So, carrying out transcutaneous method after this therapy gives the bilirubin level in the skin, but the value of interest is the level of bilirubin in the blood.

Q. Who is funding this project?
A. This project is funded by BIRAC (Biotechnology Industry Research Assistance Council), under the BIG (Biotechnology Ignition Grant) scheme.

Q. What are the novelty points of your device?
A. The current techniques work mainly on the plasma of the blood (they do not use the whole blood because RBC's scatter light). So, we plan to use a Reagent-less path/technique, where complete blood is analysed. Also, the target is to build a device that uses only 1-2 drops of blood.

# 4.DIGITAL X-RAY SYSTEM

There is a greater need for an affordable and compact medical imaging device in India, especially in rural areas, which have low resources. It is necessary that a device be developed, that can be used in Primary Health Centers (PHCs) unlike the ones currently available in the market which demand higher resources in terms of cost, energy, skilled manpower and radiation levels. This is what the team at CIME was inspired by and chose to explore.

**TEAM MEMBERS:**

Dr. Suma H N (Principal Investigator)

Appaji M Abhishek (Co-Investigator)

Dr Bharatkumar Hegde (Research Associate)

Priyanka Chakravarty (Junior Research Fellow)

**DURATION OF PROJECT : 2 AND A HALF YEARS**

# 4.DIGITAL X-RAY SYSTEM

Q. What is the device which you are currently working on?
A. We are working on a low cost Digital X-Ray system, which can be made easily accessible to people in the rural areas.

Q. For how long have you been working on this?
A. We have been working on this project for the past two and a half years.

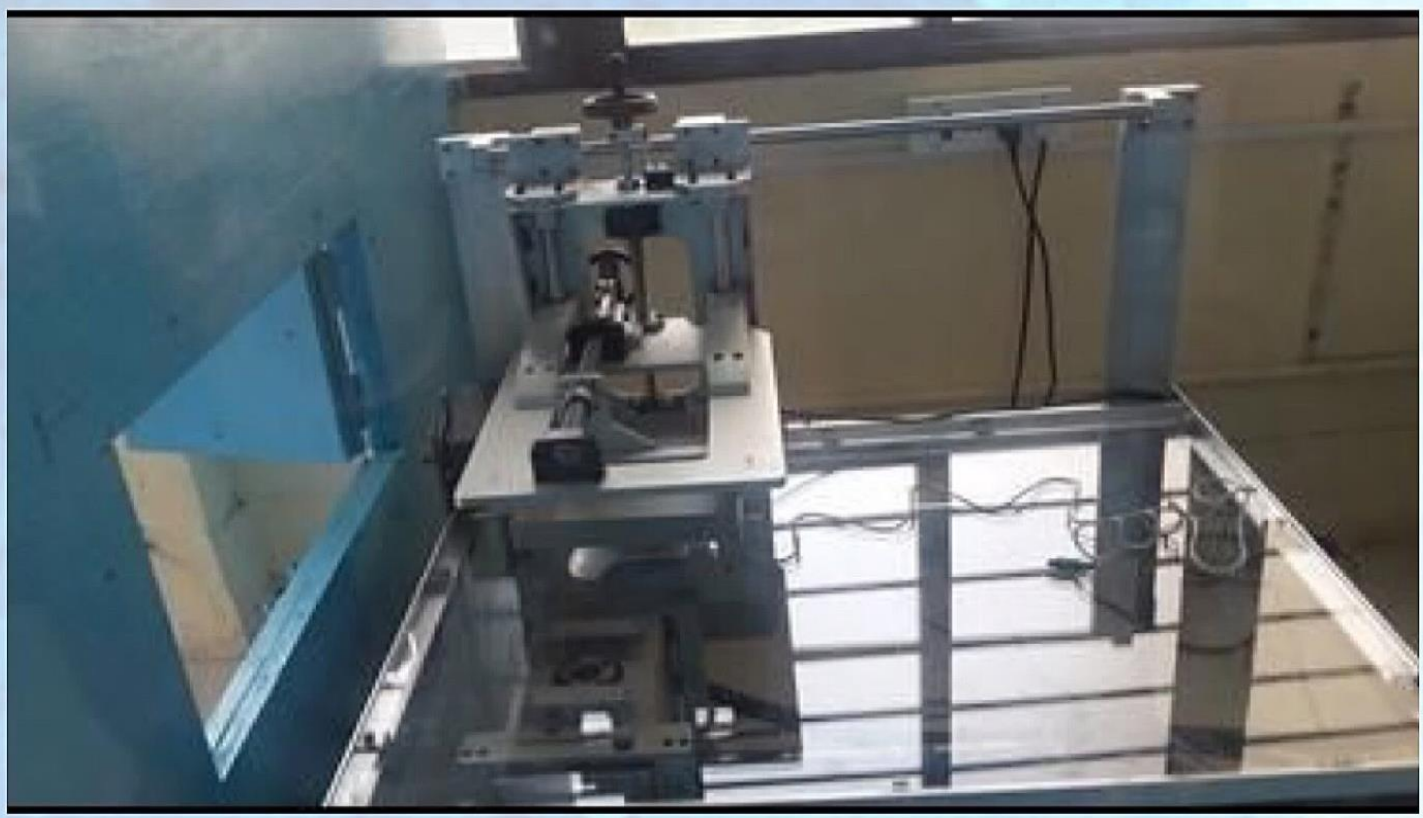
Q. How is your project funded?
A. It is funded by Department of Science and Technology (DST), Government of India.

Q. What are the advantages of your device?
A. The conventional digital X-ray machines, use a flat panel detector/sensor, which is the most expensive component of the device. We made our device more affordable by using a line (single pixel array) detector, which is far more economical. The device automation is designed in such a way that we are able to get a 2D (area) image from a 1D (line) detector.Any medical diagnostic X-ray device has to adhere to the AERB radiation guidelines, if it crosses certain dosage levels. To address this issue and make it more accessible, we have designed a very low dosage X-Ray imaging approach in our device. Being digital in nature, it also enables better user experience and documentation. The implemented automation of this device reduces the human intervention to a greater extension thereby avoiding X-ray radiation exposure faced by the operators.

The device is enabled with dose optimization, i.e. one can restrict the area of exposure to the region of interest accurately, thus avoiding exposing unintended area.

Q. What is the basic electronics used in your device which makes it different?
A. Instead of an area detector, we have used a line detector. This basically works as a scanner, in which both the source and detector move simultaneously. The source radiation is collimated to match the width of the detector and the output is captured line-by-line, hence employing less source dosage which, is deliverable to the patient. The PC acts as a master controller, which controls the X-Ray source, detector and motors in synchronisation, to produce a good X-ray image.

Q. Is there any scope for improvement in your device?
A. In future, we plan to make it portable by using miniature X-ray sources for easy use of access and also for regulatory approval purposes. We are also working on the concept of tele-radiology, to enable the clinician to diagnose remotely.



We don't remember days,
We remember moments
-Cesare Pavese

# PHASESHIFT – 2018

# BEYOND THE SKIES WORKSHOP REPORT

The event was conducted by Dr.Raveesha.KH on 15th September,2018 .He has conducted several such workshops for underprivileged kids and in several other colleges. The event started off with basic introduction to telescopes and using them for sky observation. This was followed by making of the telescope, which was conducted very smoothly and efficiently by Dr.Raveesha.KH.Participants were able to keep up with the step by step demonstration by him and enthusiastically reproduced the said steps to make a telescope of their own. The telescopes were made by the participants in about 15 minutes and all the participants were successful. This was followed by using the made telescope to observe sky.





## TECHNO TEASER: EVENT REPORT

This was a circuit building event were teams of two had to build a proximity sensor. The components were provided by the department laboratory. The event got a total of 6 team registrations.

The event consisted of two rounds. The first round was a crossword puzzle based on space systems. This was conducted in classroom ML5001 and the participating teams were given 20 minutes. Out of the 5 teams that took part, 3 teams qualified to the second round. In the second round, the participants were given a problem statement, the answer to which was a ‘proximity sensor’. The participating teams were allowed to use the internet for 20 minutes to obtain a circuit diagram and then were moved to the analog laboratory to build their own proximity sensors. The second round was judged by the department HoD, Dr. S.B. Bhanu Prashanth.

The winning team were third year students from BMS College of Engineering. Their prize money was INR 1000. The team that placed second was from first year, winning a prize money of INR 500.

# Report- Sane In Space

Humans, are bound to exhaust the earth's resources as we know it. We may hit the apocalypse sooner than predicted, and when we do, we need to be ready.

NASA powered up the Orion Spacecraft, bringing renewed attention to a new and exciting era of space exploration – a human mission to Mars.

Now we want you to come up with the solution. How are we as a race, to survive on Mars?

If we were to finally colonize  the planet, how would we thrive there, with the ease and simplicity of thriving on Earth?

Tell us, and we'll tell the world why your idea is a game changer.

The sky has never been the limit.

And so, we will aim to build our future on Mars.

# Report on GEOSPATIAL WORLD (WORKSHOP)

Geospatial world is a satellite image processing and pattern recognition hands-on workshop conducted by Mr.Niyas S, a researcher and developer in image processing and computer vision algorithms. The workshop included working on software such as MATLAB.

The workshop was held on the 16th of September. The workshop started at 9:30 AM with a brief introduction about basics of Image Processing followed by the provision of codes for beginners image processing. After a great interaction between the participants and the speaker, each of them were allowed to run the code in their respective systems and check the simulation of the codes.

A brief intermission was given at 12:30 pm where the participants were allowed to visit the stalls around the campus followed by lunch.

The second session began at 1:15 PM with more insights into image processing about its various applications in the modern world and the scope for it at present and the near future.

The workshop had a turn out of 39 participants from various colleges across Bangalore. The workshop was concluded by acknowledging the speaker followed by a vote of thanks by the HOD.


BMS COLLEGE OF
MEDICAL ELECTRONICS

# ACTIVITIES

**6 Jan 2019:** Shri. Abhishek Appaji, Faculty, Dept of Medical Electronics gave a presentation on IEEE Young Professionals activities as part of Annual general meeting held at Dayananda Sagar University, Bangalore.


**6 Jan 2019:** Shri. Abhishek Appaji, was appointed as Chair of IEEE SIGHT Bangalore Section to manage the IEEE Humanitarian activities of Bangalore Section and its affiliated colleges.

**9 Jan 2019:** Shri. Abhishek Appaji was awarded with outstanding service to COMSNETS 2019 at Chancery Pavilion Hotel, Bangalore.



**11 Jan 2019:** Shri. Abhishek Appaji, Faculty, Department of Medical Electronics chaired COMSNETS 2019 NETHEALTH workshop held at Chancery Pavilion Hotel, Bangalore


**18 Jan 2019:** Dr.M.S.Suma, faculty, Department of Medical Electronics along with Ms. Manjushree S P, M.Tech Student attended IISc Industry 4.0 Workshops "OPC UA –Platform enabler for Smart Manufacturing for MSMEs" held at Indian Institute of Science, Bengaluru.

**21 Jan 2019:** Shri. Abhishek Appaji, Faculty, Dept of Medical Electronics conducted workshop on technical writing and publishing for Masters students of Department of Computer Science Engg of University Visvesvaraya, College of Engineering, Bangalore.

**24 Jan 2019:** Shri. Abhishek Appaji, Faculty, Department of Medical Electronics was invited to deliver a talk on How to write a paper and research Grants at SJB Institute of Technology, Bangalore.

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**24 Jan 2019:** Dr.M.S.Suma, faculty, Department of Medical Electronics along with Ms. Manjushree S P, M.Tech Student nominated by IEEE WIE Bangalore Section, had attended Verilog/System Verilog hands-on workshop held at Texas Instruments, Bengaluru

**25 Jan 2019:** Shri. Abhishek Appaji, Faculty, Department of Medical Electronics was invited to deliver a talk on Future Technologies by KLE Institute of Technology, Hubli.

The fourth International Conference on creativity and innovation for and from grassroots (ICCIG 4) as mark of 150th Birth Anniversary of Mahatma Gandhi held at Indian Institute of Management, Ahmedabad (IIM-A), Gujarat


**02nd March 2019:** Dr. S.B. Bhanu Prashanth, Prof and Head of the department of Medical electronics was invited to participate in the BoS meeting in the department of Electronics and Instrumentation engineering at Ramaiah Institute of Technology, Bangalore.

**16th March 2019:** Dr. S.B. Bhanu Prashanth, Prof and Head, and Dr. K. Vijayalakshmi, Associate Professor from the department of Medical electronics were invited to be members of the panel of judges during the 'Engineering Fair' at Visvesvaraya Industrial & Technological Museum, Bangalore.


**29th March 2019 :** Dr. Suma M.S, Faculty of Dept. of Medical Electronics participated in the short-term course on "Current Status and Requirements of Biomedical Devices" under the Quality Improvement Programme by AICTE/Ministry of Human Resource Development, Government of India, during 25th-29th March 2019.

**Talk about 3D Stereotactic Device**

**IEEE Young Professionals at Schneider Electric R&D India**



**8 Apr 2019**: Abhishek Appaji, Faculty Dept of Medical Electronics was invited to talk on Medical Signal and Image Processing at BIET, Jhansi, UP.


16 Apr 2019: Abhishek Appaji, Faculty Dept of Medical Electronics was invited to talk about Traits and attitude of Student Entrepreneur at PES college of Engineering, Mandya

**IEEE PES Day and IEEE PES Student Branch advisors and chairs meet at BMSCE.**



4 May 2019: Abhishek Appaji, Faculty Dept of Medical Electronics was invited as Jury to Gitam University, Bangalore for IEEE SB Project and Idea Competition Pragyan 1.0.


5 May 2019: Organizer of IEEE Bangalore Section Sunday Walk and Breakfast with IEEE Fellow Prof John Mathews, USA on 5 May 2019 at Cubbon Park.

**22 June 2019:** The Department's advisory board meeting was conducted, with the major agenda of reviewing the proposed scheme of study for the UG programme (2018 onwards). Dr. N. Sriraam from RIT, Dr.E.Rajakumar from Robert Bosch and Mr. Ajay Narayanan from GE Healthcare were the external members. Faculty and Student/Alumni representatives were the other participants.

**7 July 2018:** Department of Medical Electronics and IEEE Young Professionals Bangalore Section conducted one day Bootcamp on Deep Learning. There were 8 resource persons and 100 participants from Industry and Academia.


**1 Aug 2019:** Abhishek Appaji, Faculty, Dept of Medical Electronics was invited to deliver a talk during Y-TEMS held at NAASCOM, Bangalore

**Aug 2019:** Prof Raj Rao, Prof & Head, Department of Biomedical Engineering, University of Arkansas, USA visited dept of Medical electronics to discuss summer school for students of Arkansas and BMSCE.

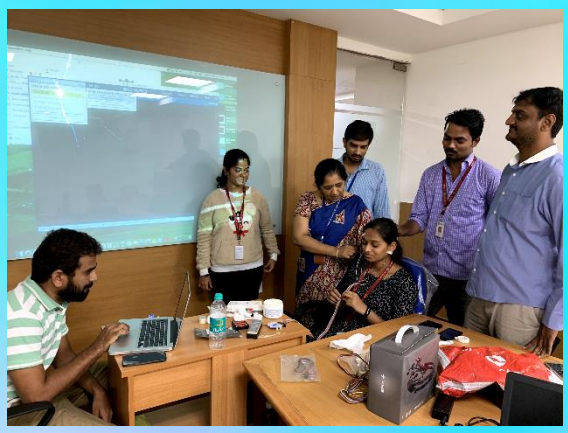
Prof Raj Rao, Prof & Head, Department of Biomedical Engineering, University of Arkansas, USA gave a talk on research Biomedical Engineering for students of Medical Electronics and Biotechnology of BMSCE.

**21 Aug 2019:**A batch of 5th semester students of Department of Medical Electronics along with faculty Dr.Manisha Joshi visited on 21st August.Rashtrotthana Blood Centre Lab at Basvangudi in Bangalore.

**24 Aug 2019:** Abhishek Appaji, faculty, Department of Medical Electronics was invited to talk at TECH DAY on Leveraging Innovation by students and academician held at Maharaja Institute of Technology, Mysuru.

**27 Aug 2019:** Prof Jose Smith, Prof Agnes Boots and Prof Prof Frederik Jan Van Schooten, Maastricht University, NL visited Dept of Medical Electronics for research Collaboration.

**7 Sept 2019:** Dept of Medical Electronics and Dept of CSE organized a workshop on Web development and software testing. The speakers were from CODEIO on 7 and 9 Sept 2019.



**9 Sept 2019:** Dept of Medical Electronics, organized a one day workshop on Neuroimaging and Brain Computer interface for PG students. The speakers were Vittal Koran and Anantha Padmanabhan from NIMHANS, Bangalore.

**14 Sept 2019:** Shri. Abhishek Appaji, Faculty, Dept of Medical Electronics, was invited to give a talk on student to entrepreneur at Dayanada Sagar University, Bangalore

**21 & 22 Sept 2019:** Dept of ECE in collaboration with IEEE Bangalore Section organized two days IEEE TTTC VLSI Test Seminar.

**27 Sept 2019:** Dept of Medical Electronics organized one day Tech Talk by Alumni on Medical Device Testing. The alumni were Shruti G, Niramai; Dheeraj, Sattva Medtech and Addakammai, Innaccel.

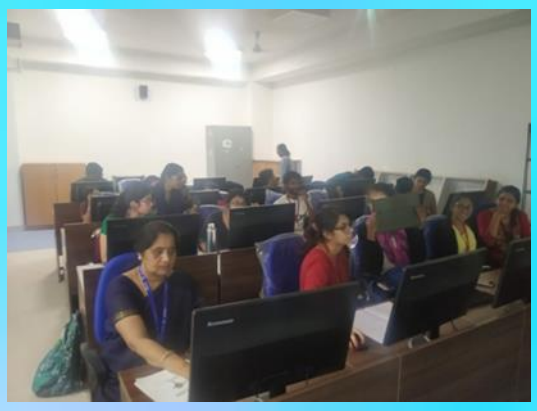
**7thNov2019:**Dept of Medical Electronics organized a guest lecture on "Biomedical Engineering: Opportunities in Germany and France" by Dr. Susmita Sridhar Postdoctoral Researcher Institute Curie - Research Centre, Paris , France.

**13thNov 2019** : Dr.S.B. Bhanu Prashanth, Professor, department of Medical electronics, participated in the Stratasys 3D Printing User Forum 2019, Conrad Hotel, Ulsoor, Bengaluru

**IEEE Conference WIECON 2019**



**17th Nov 2019**: "Department of Medical Electronics arranged an industrial visit to UG and PG students to The Centre for Advanced Research in Integrative Medicine" (Anvesana) at Swami Vivekananda Yoga Anusandhana Samsthana University



**23stNov2019:** Dept. of Medical Electronics, organized a one day workshop on “Clinical Data Analytics through R software”. The speaker Mrs . Mamtha Mtech.Technical Assistant from BESCOM Bangalore.

Behind you, all your memories ,
before you, all your dreams,
around you, all who love you,
within you, all you need.

Here is a glimpse of the years spent in college by the Batch of 2018.

# FUTURE BOUND

# STUDENTS ACHIEVEMENTS

Simran Aashiana
(1BM15ML027)

MASTERS IN BIOMEDICAL ENGINEERING AT UNIVERSITY OF GRONINGEN, NETHERLANDS

COMPETITIVE EXAM : IELTS

INTERNSHIP AT UNIVERSITY MEDICAL CENTER GRONINGEN

Ranjith P
(1BM15ML016)

Higher education : Mtech in VLSI and Embedded systems AT RV COLLEGE OF ENGINEERING

Competitive exam: PGCET

Sai Krishna CR
(1BM15ML019)

BIOMEDICAL ENGINEER AT SRI SATHYA SAI SARLA MEMORIAL HOSPITAL.

Participated in Annapoorna Seva Activities

Sanjana V
(1BM15ML021)

OFF CAMPUS PLACEMENT AT INTEL

FIRMWARE DEVELOPMENT ENGINEER AT INTEL CORPORATION

COMPETITIVE EXAMS : GRE

DEPARTMENT TOPPER FOR THE BATCH 2015-2019 (UG-ML) WITH CGPA 9.27/10

INTERNSHIP : SOHUM INNOVATION LABS

DHEERAJ B N
(1BM15ML005)

OFF CAMPUS PLACEMENT AT INNACCEL

LEAD APPLICATION DEVELOPER AT INNACCEL TECHNOLOGIES PRIVATE LIMITED

PUBLICATION: "MANUAL TO DIGITAL TRANSITION OF PARTOGRAM IN LABOUR - EXISTING GAPS AND SOLUTION," 2019 11TH INTERNATIONAL CONFERENCE ON COMMUNICATION SYSTEMS & NETWORKS (COMSNETS)

COMPETITIVE EXAMS : GATE , GRE

INTERNSHIP : SOFTWARE DEVELOPER INTERN AT SATTVA MEDTECH

PG

AKSHAY ANANT HALYAL
(1BM17LBI01)

Competitive exam : UPSC ( civil services exam 2022 )

Internship : Imedrix Systems Pvt.Ltd

MANJUSHREE S P
(1BM17LBI09)

On campus placement as Application Specialist Trainee in Philips India Limited

Regulatory Reporting Specialist at Alcon ,RMZ Azure

Awards:
International Humanitarian Technology Project Competition - Runner UP
STARTUP WEEK - Award of Seed Money
Certificate of Merit(2017-18)
Certificate of Merit(2018-19)

Internship : Siemens Healthineers

MOOCs :Agile Innovation and Problem Solving Skills

OTHER ACHIEVEMENTS:
ISO 13485:2016 Internal Auditor
Lifetime Membership: Manipal-Government of Karnataka Bioincubator

Prathibha H M
(1BM17LBI10)

M.Tech in JRF, Ramaiah Institute of technology

Competitive exam: PGCET

Internship : NIMHANS

HIDANGMAYUM BEBINA DEVI
(1BM17LBI07)

TUTOR (SELF EMPLOYED)

Publication: Bilateral Breast Geometry Analysis –A Preliminary Tool for Detection of Breast Abnormality

# Rashtrotthana Blood Centre (RBC)

Date: 21st August 2019.

A batch of 5th semester students of Department of Medical Electronics along with faculty Dr.Manisha Joshi visited Rashtrotthana Blood Centre Lab at Basvangudi in Bangalore. This visit was mainly focussed on to understand the procedures involved during blood donation, the technology and the equipments used. Students were split into two groups. Dr.Sumithra Medical officer there explained about the facilities available inside the centre, their methods of collecting blood, the equipments used for the extraction of certain blood components and their storage and Single Donor Platelets (Apheresis) unit . She also explained about the maintenance of the equipment and ethics considered during blood storage and disposal. After the tour, a presentation was arranged about the SURAKSHA a day care centre for kids suffering from thalassemia that is run along with the blood centre.

OUTCOME OF THE VISIT:

• The technology and the equipment used for collection of blood was made familiar

• The various processes involved in collection, separation and storage of blood and its components was explained.

• Discussion on the difficulties faced and possible solutions to overcome these difficulties was held.

Coordinator Dr.Joshi Manisha

# Visit to Brain Museum

26th April 2019: 10.30 to 1pm

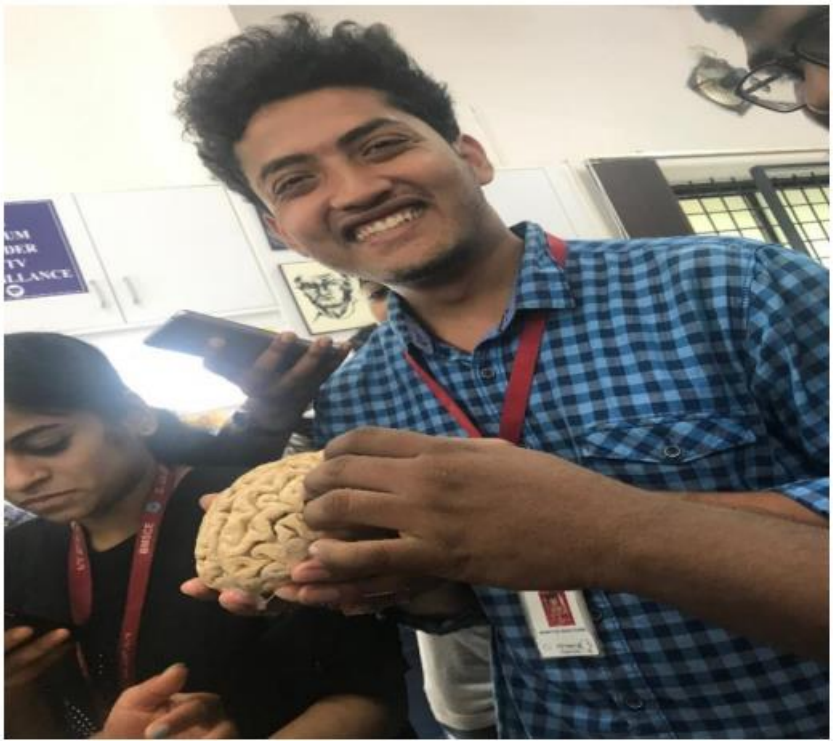
We visited this museum as part of Industrial Visit. It started with a presentation explaining the different parts of the brain in a classroom adjoining the museum. One of the members of the team first bring in an all real skull. Next comes a real specimen of the human brain. Guide will show the parts of the brain and their functions. Next, you hop to the actual museum – a big, white room that's lined with shelves that display transparent cases with all kinds of brains in them. There are over 400 of them. You start off with the animal kingdom, a tiny chicken brain is followed by specimen from a duck, mouse, rat, and a cow. You then move onto fetuses and trace the beginning of brain development in human, including those that tragically fail to develop a brain at all – a condition called anencephaly. Then comes a lineup of brains that have been suffered with conditions like Parkinson's, Alzheimer's, and Cerebral Palsy. Others are of accident victims, many of whom could have easily been saved with earlier diagnosis. And in the end, the specimen with neuro-infections such as Tapeworm eggs affecting your brain or the amoeba that brings death should you inhale it in a dirty, untreated pool.

Overall visit helped us in understanding Neuro anatomy, neuropathology as well as Neuro disorders and the precautions to Neurodisorders .we both UG as well as PG students total of 33 students along with two faculty members visited the Museum.


May.02,2019


YouCam


FOETAL SKULL-NCH FUSION OF SUTURES
(30 WEEKS)



Art is the accomplishment of our desire to find ourselves among the phenomena of the external world.
-Richard Wagner

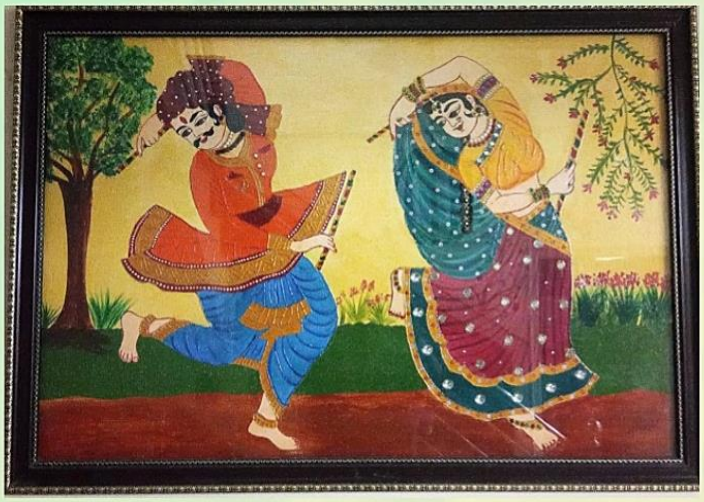
# ARTIST'S CORNER

ANVITHA
3rd YEAR

ANVITHA
3rd YEAR

SUMAN S MURTHY
3rd YEAR

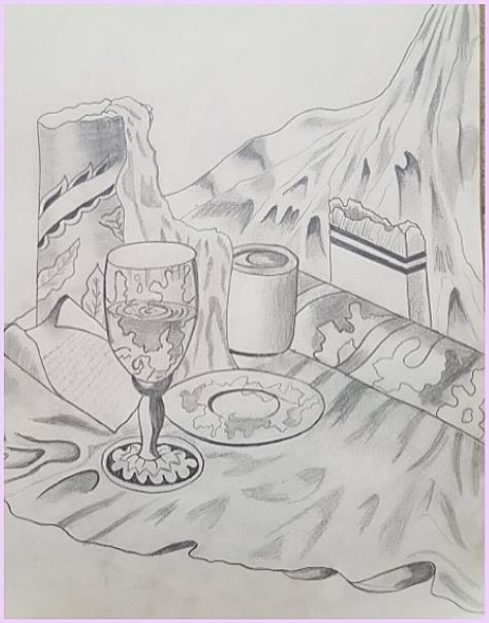
SUMAN S MURTHY
3rd YEAR



SUMAN S MURTHY
3rd YEAR

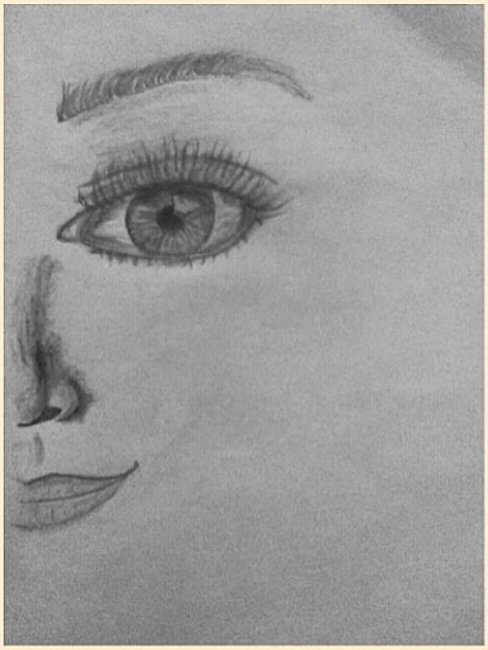
SUMAN S MURTHY
3rd YEAR

ANVITHA
3rd YEAR



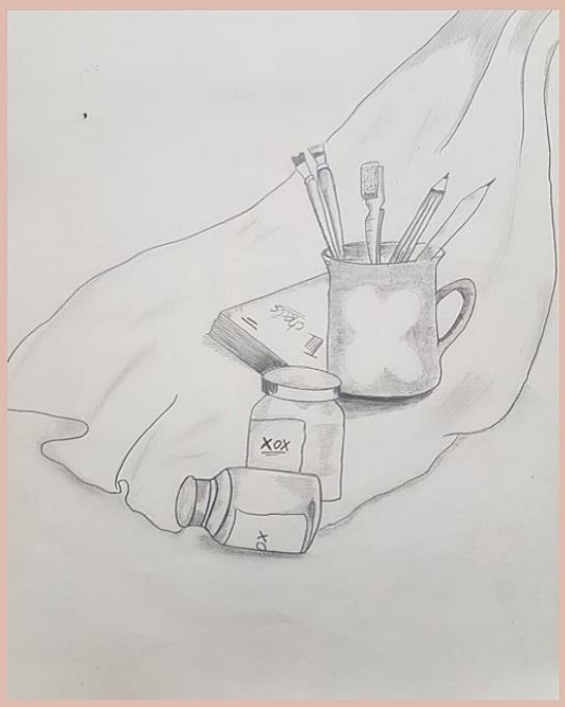
ANANYA MADHAV
1st YEAR

NEHA SHREEDHARALA
1st YEAR



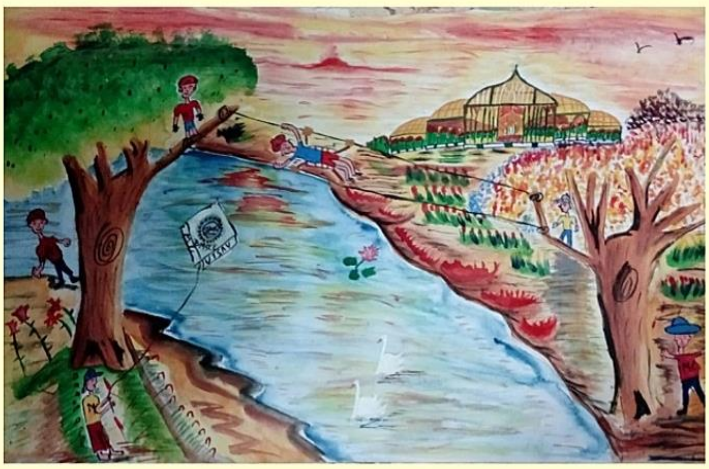
NISARGA ANIL
2nd YEAR

DHEERAJ P
2nd YEAR



ANANYA MADHAV
1st YEAR

NISARGA ANIL
2nd YEAR



DHEERAJ P
2nd YEAR

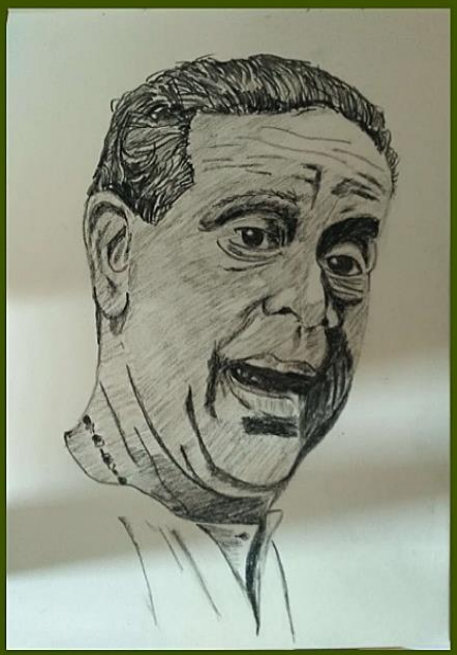
SANDEEP KUMAR
2nd YEAR

AVINASH
3rd YEAR

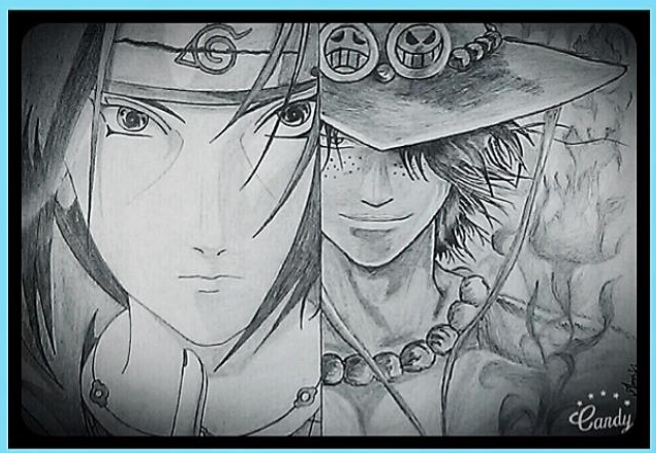
AVINASH
3rd YEAR


SANDEEP KUMAR
2nd YEAR

PRAJNA SHETTY
2nd YEAR



PRAJNA SHETTY
2nd YEAR




AVINASH
3rd YEAR