



## Department of ECE

### Center for Signal Processing

#### About Center for Signal Processing

The Centre for Signal Processing at VNR VJIET is established for conducting multidisciplinary research within specific thematic areas of societal and national importance. The center involves 17 faculty members and 7 research scholars. The center has a state-of-the-art Signal and Image Processing Laboratory equipped with modern machinery and software on par with reputed institutions/Universities. Apart from carrying out frontier research in the signal processing areas, the center aims at creating technologies that can be commercially exploited by industries.

A number of Faculty Development Programs, Workshops, Seminars, Symposia and Webinars are conducted by our faculty team in collaboration with Mathworks and institutes of higher stature such as AICTE, JNTU Hyderabad, IIIT Hyderabad, IIT Madras, IIT Hyderabad, NIT Patna, NIT Warangal, and NIT Rourkela to keep abreast with the latest developments in the field such as RF imaging, Deep learning, Machine Learning, Computer vision, and Biomedical Signal Processing.

Sponsored research projects worth above 1 Crore from IISc-MSME, Biotechnology Industry Research Assistance Council (BIRAC), UGC, AICTE, DST, and Center for Cellular and Molecular Platforms (CCAMP) is completed/on-going in the center.



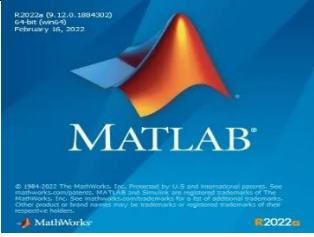

#### List of Hardware equipment available

- Spectrum Analyzer
- Digital Storage Oscilloscope
- TMS 6713 Starter kits (11 numbers)
- i7 systems (35 numbers)

#### List of Software Available

- MATLAB (Licensed) with All Tool boxes
- Code Composer Studio IDE
- Anaconda Python

## The list of Major Hardware/Software in the center for Signal Processing

	
DSK 6713	i7 System
	
MATLAB R2022a	Code Composer Studio IDE

## Faculty associated with Center for Signal Processing

S.No.	Name of the faculty	Designation	Area of research
1	Dr. Ranjan Kumar S	Professor	Image and Video Processing, Computer vision
2	Dr. Y. Padma Sai	Professor	Biomedical Signal Processing
3	Dr. Lam Padmasree	Professor	Signal Processing
4	Dr. Vasagiri Krishnasree	Asso. Professor	Image processing
5	Mr.G.Radha Krishna	Asso. Professor	Speech Processing
6	Mr.Shaik Khadar Sharif	Asso. Professor	Machine learning and Deep learning
7	Dr. L. V. Rajani Kumari	Asst. Professor	Biomedical Signal Processing
8	Dr. Santosh Kumar Choudhary	Asst. Professor	Thin Film Solar cell
9	Dr V Sagar Reddy	Asst. Professor	Speech Processing
10	Dr.G.Vijay Kumar	Asst. Professor	Machine learning for biomedical applications

11	Dr.Pradeep Kumar	Asst. Professor	Machine learning
12	Mr.V.Naveenkumar	Asst. Professor	Biomedical Signal Processing
13	Ms.K. Aruna Kumari	Asst. Professor	Deep learning
14	Dr. R Sravanth Kumar	Asst. Professor	Brain-Computer Interface
15	Ms.Ch.Rajakumari	Asst. Professor	Machine learning and Deep learning
16	Ms.Helan Satish	Asst. Professor	Signal Processing
17	Mr. T. Srinivas	Asst. Professor	Deep Learning



**VNR VIGNANA JYOTHI INSITUTE OF ENGINEERING AND TECHNOLOGY**  
**DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING**

**Signal, Image and Video Processing**  
**SPECIAL INTEREST GROUP**



**Dr. Ranjan Kumar**  
**Professor**  
 [Image and Video Processing, Computer Vision]



**Dr. Y. Padma Sai**  
**Professor**  
 [Biomedical Signal Processing]



**Dr. L. Padmasree**  
**Professor**  
 [Signal Processing]



**Dr. V. Krishna Sree**  
**Associate Professor**  
 [Image Processing]



**Mr. Shaik Khadar Shari**  
**Associate Professor**  
 [Machine Learning and Deep Learning]



**G. Radha Krishna**  
**Associate Professor**  
 [Natural Language Processing]



**Dr. L. V. Rajani Kumari**  
**Assistant Professor**  
 [Machine Learning and Deep Learning for Biomedical signal processing]



**Dr. Santosh Kr. Choudhary**  
**Assistant Professor**  
 [Thin Film Solar cell, Signal Processing]



**Dr. V. Sagar Reddy**  
**Assistant Professor**  
 [Speech Processing]



**Mr. V. Naveen Kumar**  
**Assistant Professor**  
 [Biomedical Signal Processing]



**Mrs. Helan Satish**  
**Assistant Professor**  
 [Signal Processing]



**Ms. K. Aruna Kumari**  
**Assistant Professor**  
 [Image Processing]



**Dr. G. Vijaya Kumar**  
**Assistant Professor**  
 [Biomedical Signal Processing]



**Dr. R. Sravanth Kumar**  
**Assistant Professor**  
 [Brain Computer Interface]



**Mrs. Ch. Raja Kumari**  
**Assistant Professor**  
 [ML/DL for Cervical spondylosis]



**Dr. Pradeep Kumar**  
**Assistant Professor**  
 [Medical image Processing]



**Mr. T. Srinivas**  
**Assistant Professor**  
 [Signal & Image Processing]

### The list of funded research projects carrying/carried out in center for Signal Processing

<b>S.No.</b>	<b>Title of the Project</b>	<b>Funding Agency/ Industry/ Organization</b>	<b>Sanctioned Amount (Lakhs)</b>	<b>Status</b>
1.	Swaasa AI platform – revolutionary approach to respiratory healthcare	Center for Cellular and Molecular Platforms (C-CAMP), Bengaluru	7.00	Completed
2.	Frequency band analysis of acoustic signals for health care	Salcit Technologies Pvt. Ltd.	10.00	On-going
3.	Digital Health Advisory System for Chronic Respiratory Diseases	BIRAC – Biotechnology Ignition Grant(BIG) Scheme	45.60	Completed
4.	Cough and Wheeze analyzer for Respiratory Digital Health Services	Biotechnology Industry Research Assistance Council (BIRAC – Soch)	15.00	Completed
5.	Digital Health Advisory System for Chronic Respiratory Diseases	IISc - MSME Center of Excellence	6.75	Completed
6.	Development and Implementation of Automized System for the detection of Sleep Disorders using EEG Analysis	UGC Minor	4.40	Completed
7.	Design and Development of Knowledge based expert system to assist farmers for maintenance of Agricultural field using aerial data acquisition	TSCOST-DST	4	On-going
8.	Development and Implementation of Algorithm for real time home automation system to assist paralyzed patients using Eye blinking	UGC	3	Completed
9.	Design and Development of System for ECG Waveform Characterization and processing	AICTE	8.25	Completed

### Faculty members with membership in various professional societies

S.No	Faculty Name	Membership No.						
		IEEE	ISTE	IETE	ISOI	IEI	Internet Society	OTHERS
1	Dr.Y.Padma Sai	SM925311 33	LM30846	F192152	LM17 66	F- 120042-5		ASCI:53991
2	Dr. L.Padma Sree		LM62863	F234395			2236954	
3	Dr.Ranjan Kumar Senapati	97523751	LM 50543				2236963	
4	Dr.V.Krishna Sree		LM62865	F216325				IAENG:2927 66
5	G.Radha Krishna		LM55646					
6	Sheik Khadar Sharif		LM53227	F234396				
7	Dr.Santosh Kumar Choudhary		LM 122051	AM 125862				IAENG:1626 86
8	Helan Satish		LM 62873	M234465				
9	K.Aruna Kumari	96512231	LM62874	M234466				
10	Dr.L.V.Rajani Kumari	97511211	LM79575	M234471				
11	G.Vijaya Kumar		LM90972				2236854	
12	V.Naveen Kumar	SM975110 32	LM 107794					
13	Dr.V.Sagar Reddy	97523742	LM 107783					
14	Pradeep Kumar		LM 122053					IAENG:2219 97
15	R.Sravanth Kumar	92613950	LM 122049					
16	T. Srinivas						22495553	
17	Ch. Raja Kumari	97239703	LM 122061					IAENG:2229 03

### Faculty on editorial boards and in organisation committees

S. No.	Name of the faculty	Nature of Contribution	Details of associated Organization / Journal / Conference etc.	National / International	Date / Duration
1.	Dr. Y.Padma Sai	Chair	WiE Affinity Group, IEEE Hyderabad section	National	January 2020 to till date
		Member, Technical Program Committee	International Conference on Artificial Intelligence: Theory and Applications [AITA 2021]	International	April -2021 “23rd – 24th December 2021”
2.	Dr.Ranjan K Senapathi	Reviewer	Informatics in Medicine Unlocked	International	2019 to till date
		Reviewer	Computers in Biology and Medicine	International	2019 to till date
		Reviewer	IJIG World Scientific	International	2019 to till date
		Member, Technical Program Committee	International Conference on Artificial Intelligence: Theory and Applications [AITA 2021]	International	April -2021 “23rd – 24th December 2021”

		Editorial Board Member	Journal of Engineering Design and Computational Science	International	May 2022 to till date
3.	Mr.G.Vijaya Kumar	Reviewer	Sleep and Breath	International	2020 to till date
		Reviewer	IEEE Transactions on Bio Medical Engineering	International	2020 to till date
		Reviwer	Walailak Journal of Science and Technology	International	2020 to till date
		Reviwer	Computers in Biology and Medicine	International	2020 to till date
4.	Dr.R. Sravanth Kumar	Reviewer	IET Book International Journal	International	2019 to till date
		Editorial Board Member	IGI global Journals	International	2018 to till date
5.	Dr. Santosh Kumar Choudhary	Member, Technical Program Committee	International Conference on Artificial Intelligence: Theory and Applications [AITA 2021]	International	April -2021 “23rd – 24th December 2021”

**Faculty involved in Conferences/ Workshops/ Faculty Development Programs/ Webinars content development**

S. No	Title of the Workshop/FDP/Webinar	Duration	Organized by
2	Faculty Development Program on “Data Science for ALL”	12th - 23rd April 2021	All the E&ICT Academies in association with the ECE department VNRVJIET
3	Advanced Optimization Techniques and Hands-on with MATLAB/SCILAB	13th - 24th July 2020	E&ICT Academy, NIT Patna, MNIT Jaipur, IIITDM Jabalpur and Department of ECE, VNR Vignana Jyothi Institute of Engineering & Technology
5	Python Programming	7th - 18th September 2020	VNRVJIET in association with E & ICT Academy, NIT Patna
7	Digital Tools for Writing, Authoring and reviewing manuscripts	21st September - 2nd October 2020	VNRVJIET in association with E & ICT Academy, NIT Patna
9	Basics of Python Programming	9th - 13th November 2020	ECE department in association with IEEE SP Society

10	Virtual event “IEEE SPS Summer School on Internet of Things for Biomedical and Healthcare Applications.”	28th - 31 <sup>st</sup> December 2020	VNR Vignana Jyothi Institute of Engineering and Technology in association with IEEE Signal Processing Society, IEEE Hyderabad Section, IEEE Women in Engineering Affinity Group Hyderabad Section, and IEEE VNRVJIET
11	FDP on Design Thinking for Engineering Education	15 <sup>th</sup> - 20 <sup>th</sup> Jun 2020	CPADT, VNRVJIET
12	Professional Development Program on AI & ML for Engineering Applications	08 <sup>th</sup> – 12 <sup>th</sup> Jun 2020	VNRVJIET
13	FDP on Natural Language Processing	06 <sup>th</sup> – 10 <sup>th</sup> Jan 2020	VNRVJIET in association with E & ICT ACADEMY, NIT Patna
14	Workshop on Project Based Learning with MATLAB, Simulink, and Low-cost Hardware	16 <sup>th</sup> – 17 <sup>th</sup> Dec 2019	VNRVJIET in collaboration with Mathworks India Private Ltd. and Capricot Technologies Pvt. Ltd.
15	FDP on 3D Printing for Industrial and Biomedical Applications	02 <sup>nd</sup> – 06 <sup>th</sup> Dec 2019	VNRVJIET in association with E & ICT ACADEMY, NIT Patna
16	FDP on Python Programming	02 <sup>nd</sup> – 06 <sup>th</sup> Dec 2019	VNRVJIET in association with E & ICT ACADEMY, NIT Patna
17	FDP on Sensor Networks and IoT	26 - 31 Aug 2019	VNRVJIET in association with E & ICT ACADEMY, NIT Warangal
18	FDP on Robotics & AI	24 - 28 June 2019	VNRVJIET in association with E & ICT ACADEMY, NIT Patna
19	Workshop on Python	22 <sup>nd</sup> Jun 2019	VNRVJIET in association with IITB
20	FDP on Introduction to Programming: A Pedagogical Approach	17 - 21 Jun 2019	VNRVJIET in association with E & ICT ACADEMY, NIT Patna

### List of Partial delivery of the courses by the Industry personnel

S.No	Name of the industry personal	Industry associated	Course name	Date
1	Ms.V.Radha	Nutrisnax Industries, Hyderabad	Digital Signal Processing	26-07-2020
2	Ms. Nita K Patel	Engineering at L3Harris Technologies	Digital Signal Processing	19-09-2020
3	Ms. V Sailaja	SAP Labs	Digital Signal Processing	10-10-2020
4	K.Sai Deep	TCS, Hyderabad	Machine Learning	9-9-2019
5	K.Swetha	TCS, Hyderabad	Data Analytics	3-8-2018

### The list of best academic projects from the Center for Signal Processing for the academic year 2020-21

S.No.	Project Title	Name of the Project Supervisor (s)	Name of the Student	Roll No.
1	NextMind's wireless EEG brain sensing devices for virtual reality application	Dr. R. Sravanth Kumar	K. Anurag Reddy M.A.Thoufiq S. Yoga Priya V. Raj Kumar	18071A04M8 18071A04N6 18071A04Q2 18071A04Q7
2	Content-based medical image retrieval using deep convolutional neural network,	Dr. Ranjan Kumar S.	N. Prasanna Lakshmi B. Srikar V. Prasanth Kumar B. Nikitha V. Sowmya Sree	18071A04N2 18071A04J8 18071A04Q9 18071A04J2 18071A04Q6

### The list of few of the academic projects carried out in the center for Signal Processing during academic year 2021-22

S.No	H.T.No	Title	Name of the Guide
1	19075A0406 18071A0407	A Computational Study of Oxygen Deprivation in Cardiac Ventricular Tissue	Ms.Helan Satish



	18071A0433 18071A0459		
2	18071A0429 18071A0432 18071A0445 18071A0457	Severity detection of Cervical Signal Processingondylosis using deep learning techniques	Dr. L. V. Rajani Kumari
3	18071A0410 18071A0414 18071A0431 18071A0436	Deep Learning based CAD system for cancer detection	Dr V Sagar Reddy
4	18071A0404 18071A0425 18071A0419 18071A0440	signal processing applications using M/L	Dr. Y. Padma Sai
5	18071A0477 18071A0485 18071A04B9 19075A0408	Classification of polytime codes of LPI Radar using image processing	Ms.Ch.Rajaku mari
6	18071A0488 18071A0465 18071A04B2 18071A0495	Medical image compression and denoising using convolutional Autoencoders.	Dr. Ranjan Kumar S
7	18071A0468 18071A04A2 18071A04A3 19075A0407	Sleep Quality Detection Based on EEG Signals	Mr.G.Vijay Kumar
8	19075A0411 18071A0472 18071A0489 18071A04B7	Gender dependency in Second Language Learning	Mr.G.Radha Krishna
9	18071A04H4 18071A04D0 18071A04E4 18071A04F8	Development of precision agriculture	Dr.Lam.Padma sree

10	18071A04C4 18071A04E9 18071A04F6 18071A04H3	Lung Cancer detection using Deep learning methods	Mr.Shaik Khadar Sharif
11	18071A04D4 18071A04E1 18071A04G5 18071A04H5	Identification of Attention during cocktail party scenarios	Dr.Vasagiri Krishnasree
12	18071A04C1 18071A04E2 8071A04H7 18071A04H2	Denoising and Enhancement of Medical images using deep learning	Mr.Pradeep Kumar
13	18071A04D6 18071A04E7 18071A04G0 18071A04H0	Segmentation of MRI images using deep learning	Dr. Santosh Kumar Choudhary
14	18071A04N1 18071A04M2 18071A04Q0 18071A04K4	Safety homes for elderly people using image processing	Dr.Vasagiri Krishnasree
15	18071A04N2 18071A04J8 18071A04Q9 18071A04J2 18071A04Q6	Content-based medical image retrieval using deep convolutional neural network,	Dr. Ranjan Kumar S
16	18071A04Q8 18071A04N8 18071A04N4 18071A04N3	Discrimination of Recurrent Palsy Disease using Vowel Sounds	Mr.V.Naveenk umar
17	18071A04K2 18071A04K8 18071A04K9 18071A04Q3	Segmentation of cells in microscopy images using Deep Learning	Ms.K. Aruna Kumari
18	18071A04M8 18071A04N6 18071A04Q2 18071A04Q7	NextMind's wireless EEG brain sensing devices for virtual reality application	Dr. R Sravanth Kumar

### Publication status the student Academic Projects (2021-22)

Sl. No	Title of the paper	Name of the conference/Journal	Conference Dates	Status of the paper
1	Lung Cancer detection using Deep learning methods	Int. J. of advance research and innovative idea in education	-	Published
2	Content-based medical image retrieval using deep convolutional neural network,	3 <sup>rd</sup> Int. conf on engineering and advancement in technology-2022	8 <sup>th</sup> -9 <sup>th</sup> July 2022	Presented in the conference
3	Semantic Segmentation of Cells in Microscopy Images via Pretrained Autoencoder and Attention U-Net	IEEE MLCSS-2022	5-6 <sup>th</sup> Aug 2022	Presented in the conference
4	Segmentation of Cell Nuclei in Microscopy Images using Modified ResUNet	IEEE 3rd GCAT 2022	7-8 <sup>th</sup> Oct. 2022	Accepted
5	Segmentation of MRI images using deep learning	IEEE ICMACC-2022	28-30 <sup>th</sup> dec 2022	Accepted
6	NextMind's wireless EEG brain sensing devices for virtual reality application	IET Biomedical Applications	-	Communicated
7	Classification of polytime codes of LPI Radar using image processing	IEEE ICMACC-2022	28-30 <sup>th</sup> dec 2022	Accepted
8	Discrimination of Recurrent Palsy Disease using Vowel Sounds	3 <sup>rd</sup> Int. conf on engineering and advancement in technology-2022	8 <sup>th</sup> -9 <sup>th</sup> July 2022	Presented in conference
9	Deep Learning based CAD system for cancer detection	IEEE ICIET 2022	15-17 <sup>th</sup> sept 2022	Accepted

## FDPs and Workshops Images



MATLAB workshop by Mathworks Inc. on 29.08.2018



FDP on wireless sensor networks (Resource person: Dr. Rasmi Ranjan Rout, Asso. Prof NIT Warangal) from 26-31<sup>st</sup> Aug. 2019.



Arduino programming conducted by IEEE student branch on 25.07.2019



Workshop on C programming by I. Indira, Asst. Professor, Dept. of CSE, VNR VJIET on 20.10.2020



Virtual Lab workshop conducted by D. Mrudhika, Project Engineer, IIIT Hyderabad on 11-02-2019

## Industry Interaction

### List of MoUs with Signal Processing Industries

S. No.	Name of the Industry	Outcome
1	M/s Ananth Tech Pvt. Ltd. Hyderabad	Sanctioned consultancy projects of worth 2 lakhs for the project titled "Design and Development of Mill Standard 1553IP Core"
2	MMRFIC Technology Pvt Ltd	Sanctioned consultancy project of worth 2 lakhs for the project titled "Design Of an FFT/IFFT IP-Core"
3	Salcit Technologies Pvt. Ltd	-Sanctioned consultancy project of worth 10 Lakhs for project titled "Frequency band analysis of acoustic signals for health care". -Digital Health Startup Grant (worth 7 Lakh) from Bioincubator at C-CAMP. Bioincubator at C-CAMP, a G2C Incubation Centre under the Ministry of Electronics & IT, Govt of India's TIDE 2.0 Scheme
4	M/S BLAZE Automation	Sanctioned a consultancy project worth 6 lakhs for the project titled "Testing and Design Validation of IoT products used in the Smart Home automation projects of Blaze Automation"

### Internship opportunities in Signal Processing Industries

S. No.	Name of the Industry	Name of the student	Roll No.
1	NCR Corporation India Pvt. Ltd.	Sathya Krishna Ramayanam	18071A04P5
		Mohammed Khaja Mohiuddin	18071A0434
		Guda Madhavi	18071A0476
		Dachepally Sai Prabath	19075A0414
		Bareddy Karunakar Reddy	18071A0404
		Sammeta Srinivas	18071A04H1
		Bindu Vaishnavi Y	18071A04C9

		Meena Choudhary	17071A04F5
		Rithisha Guntuoalli	15071A04G6
		Spandana T	15071A04B3
		Ganesh R	15071A04D3
		Jaswanth Surya Sai Kumar	15071A0499
2	Hyundai Mobis	-	-
3	ZF Technologies	-	-
4	TCS Digital	-	-

### Best academic projects from the Center for Signal Processing during the academic year 2020-21

S. No	Roll No.	Project Title and Description
1	18071A04M8 18071A04N6 18071A04Q2 18071A04Q7	<p>Title: NextMind's wireless EEG brain sensing devices for virtual reality application</p> <p>Have you ever envisioned being able to operate equipment and do activities with only a blink of your eyes? This is made feasible using BCI. BCI stands for brain control interface, and it is used to collect and analyses brain signals before converting them into commands that are sent to an output device to do certain tasks. The brain creates impulses that may be collected in the form of electroencephalography (EEG) data when you blink your eyes. As a result, we suggest a system that allows impaired individuals to travel anywhere they choose in the blink of an eye, without the need for help. For the identification task, the eye blink signal is retrieved from the brain wave. A microcontroller can process these signals and make decisions based on them. The device might possibly be utilized by people with locomotive and other limitations to conduct daily tasks.</p>
2	18071A04N2 18071A04J8 18071A04Q9 18071A04J2 18071A04Q6	<p>Title: Content-based medical image retrieval using deep convolutional neural network</p> <p>With increase in use of digital imaging data, it is difficult to retrieve information needed by the hospitals from the large database leading to the need for Content-based image retrieval system (CBIR). A content based medical image retrieval (CBMIR) system can be an efficacious way for amplifying the diagnosis and treatment of multiple diseases and an advanced tool for handling large amount of data. Without such solutions, accessing, managing, and extracting meaningful data from these massive datasets is extremely difficult. Because it involves manpower, medical knowledge, and time, medical image retrieval relying on textual information such as tags and manual annotation has a low efficiency.</p> <p>In this work, we designed a deep CNN model using pre-trained VGG-16 network, which has 13 convolution layers and 3 fully connected layer for medical image retrieval. The final dense layer of VGG net is replaced with 18 output classes. The data set used for the experiment consists of 5400 images, with 18 classes. The accuracy</p>

		obtained was 97% with retrieval time less than 10 seconds, which is higher than most of the CNNs such as ALEXNET, XCEPTION and other state-of-the-art machine learning models. The proposed model involves little pre-processing and do not involve additional feature extraction techniques which simplifies the process of building the CBMIR system.
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### Details of Patents and their current Status

S.No.	Name of the Inventors	Title of invention	Patent File Number & Date of Filing	Status
<b>AY 2021-2022</b>				
1.	Dr. Ranjan K Senapathi	Intelligent caregiver wireless monitor and motion sensor for safe home system applicable for elderly people	202241008796 & 19/02/2022	Awaiting Request for Examination
2.		A Algorithm Based on Deep Learning for the Detection of COVID-19 Infections	202241000074 & 02/01/2022	Awaiting Request for Examination
3.		AI & Image Processing based System for Concoction Propertion Verification for Pharmaceutical Industry	Canadian Copyright, Reg. No. 1193919 & 07-06-2022	Registered. Awaiting <b>Grant</b>
<b>AY 2020-2021</b>				
1.	Mr. R.Sravanth Mr.K. Kalyana Mr.Peddi Anudeep Dr. Y Padma sai Mrs.Priyanka Mrs. Dharmateja Dr.P.Kishore Mr.Vijayakumar Dr.Rajendraprasad K.Sharath	Method For Characterization Of A Subject's Attention And Meditation Using Brain Computer Interface For Real Timehealthcare Monitoring	202141018928 & 23-04-2021	Awaiting Request for Examination
2.	Dr.D.N. Rao, Dr.C.Dhanunjaya Naidu, Mr.V.Naveen kumar,	An intelligent and intuitive signaling system for motor vehicles to minimize road accidents	5245/CHE/2012 & 17-12-2012 <b>Granted on 20-03-2021</b>	<b>Granted Patent,</b> Patent Number:362271 Date Of Certificate Issue: <b>20-03-2021</b>
3.	Dr. Sravanth Kumar Ramakuri	Machine learning based network intelligentization for automatically- configurable Cellular communication systems	2020103373 & 11-11-2020 <b>Granted on 13-01-2021</b>	<b>Granted Patent on 13-01-2021</b>

**AY 2019-2020**

<b>1.</b>	Mr. R.Sravanth Kumar, Dr. Y Padma sai, Mr.Peddi Anudeep, Mr.K. Kalyana Srinivas	Brain computer Interface (BCI) based system and method for Characterizing behavior state of a subject	201941050636 & 08-12-2019	FER Issued, Reply not Filed
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**AY 2018-2019**

<b>1.</b>	Dr.C.Dhanunjaya Naidu	Automatic Airlock Prevention System And Method Thereof	201841022148 & 13-06-2018	<b>Reply filed and Application in Amended stage</b>
<b>2.</b>	Mr. SVN Narayana Rao, Mr. V. Naveen Kumar, Dr. Y. Padma Sai	A System For Analyzing Risk Associated With Cough Sounds	201741045066 & 14-12-2017 <b>Granted on 27-02-2019</b>	<b>Granted Patent, Patent Number:308156 Date of Date Of Certificate Issue: 27-02-2019</b>