

# **A Report on Multimedia Signal Processing Cup 2022**

**Event Date: 5<sup>th</sup> & 6<sup>th</sup> August, 2022**

Organized by:

**Sarvajanik College of Engineering and Technology**

**In association with**

**IEEE SPS GS, IEEE SCET SPS SBC**

**& IEEE SCET Student Branch**

## **Team Behind the Event:**

**General Chair:** Chirag Paunwala

**General Co-chair:** Jing Dong

**Advisor:** K V S Hari

**Program Chair:** Nehal Shah, Mita Paunwala

**Organizing Chair:** Sarosh Dastoor, Nirali Nanavati

**Treasurer:** Prof. Neeta Chapatwala

**Organizing Committee Members:** Arpan Desai, Ketki Pathak, Chintan Varnagar,

**Program Committee:** Ashish Phophalia, Dhatri Pandya

**Student co-ordinators:** Abanob Bhanu, Muskan Jhawar



**Sarvajani College of Engineering and Technology, Surat**  
 in association with  
 IEEE Signal Processing Society (SPS) GS and IEEE SPS SCET Student Branch Chapter  
 organizes

R-10(Asia-Pacific) Level

## MULTIMEDIA SIGNAL PROCESSING CUP 2022

*! A novel approach of conveying your desires to a Computer !*

**5<sup>th</sup> – 6<sup>th</sup> August, 2022**

### General Instructions :

- Participants from any institute of R-10 Region, at UG and PG Program can participate in the competition.
- Participants can form a team of 5(max) & 1 Mentor.
- Problem statements along with data sets will be provided till 05th July, 2022, at <https://ieeespsgs.org/>
- Full code along with the 5 minute video clip should be sent by 25th July, 2022.
- Final/Winners declaration round will be on 6th August, 2022.

*(On multiple requests of various participants, the date of code submission has been extended to 30th July, 2022.)*



### Registration :

- **Free** : If at least one member of the team has IEEE SPS Membership.
- If none of the team members have IEEE SPS membership:
  - o INR 500/- per team (For Indian Delegates).
  - o USD 20/- per team (For Foreign Delegates).



### For Any Queries Contact :

Student Coordinator :-

- Muskan Jhavar : +91 72020 95213
- Abanob Bhanu : +91 70437 75099

Faculty Coordinator :-

- Prof. Chirag Paunwala : +91 94290 89799
- Prof. Sarosh Dastoor : +91 98258 97672

<http://ieeespsgs.org/mspcup/>

[spsb@scet.ac.in](mailto:spsb@scet.ac.in)

<https://bit.ly/MSP-CUP-2022>

**Student Volunteers:**

- 1.Takshil Kunadia, vice-chair, IEEE SCET SB
- 2.Palaksha Raskpoorwala, vice-chair, IEEE SPS SCET SBC
- 3.Rutvik Sojitra, Treasure, IEEE SPS SCET SBC
- 4.Dixit Boghara, Photography
- 5.Aarya Shah
- 6.Ritavi Shah
- 7.Khushi Fatnani
- 8.Priyanshi Gehlani
- 9.Jill Saliya
- 10.Nimesh Sarvaiya
11. Saqlain Shaikh

**Event Details:**

**Event Type:** Project Competition

**Event Mode:** Hybrid

**Event Platform:** Google Meet  
(<https://meet.google.com/yzt-hzej-emo> )

**Event Category:** Technical Event

**Event Date and Time:** 6th August 2022,  
10:00 IST to 18:00 IST

**Event Accessibility:** For registered participants

**Event Related Links:**

**Website:** <https://ieeespsgs.org/mspcup/>

## Event Insight:

### About the event:

This event's purpose was to transform data into information and information into insight. The participating team of up to 5 members and 1 mentor was given two contemporary domains to pick from. Teams were expected to produce a 5-minute video clip explaining their work in the first round. In the final round, contestants presented their respective presentations in front of the jury members, along with a functional prototype.

We have received registrations from renowned institutions all over the country including IIT Indore, Symbiosis institute of Geoinformatics - Pune, Jayvatrai Harrai desai polytechnic palsana - surat, Auro University, SCET, MKSSS's Cummins College of Engineering for Women - Pune, Vishwakarma Institute Of Technology - Pune, Madras Institute of Technology, KCC Institute - Noida, Karunya Institute of Technology and Sciences Coimbatore, Government Engineering College - Rajkot, AISSMS Institute of Information Technology - Pune, GIDC engineering college - Navsari, Vishwakarma Institute of Technology, Shree Swami Atmanand Saraswati Institute of Technology, SVNIT - Surat and Shree Ramkrishna Institute of Computer Education and Applied Sciences.

## Problem Statement:

For the First Round, We had provided 2 contemporary problem statement based on which participating teams were required to make a 5 min video submission summarizing their work on chosen problem statement.

### Challenge 1: Exercise pose recognition and counting sets

#### Objective:

- To achieve the aforementioned goal, develop an AI enabled virtual assistant which can run on a mobile phone or a laptop for workout lovers. The virtual assistant should be performing both exercise recognition, set counting and posting feedback in real time.
- The assistance can be a mobile application/web application/desktop application/ console application without GUI also. It can be developed in any programming language or platform of your

choice. Language preference can be Python as it supports most of the AI based libraries in the market. The participants are free to utilize any pre-trained model for preprocessing/human detection/body landmark estimation. However, exercise recognition model (using statistical/Machine Learning/Deep Learning modeling) should be designed and trained by the participant only.

### **Evaluation Criteria:**

Participants can demonstrate the system using screen recording (with application running live). The demo video should showcase features such as duration counting, feedback generation after certain count intervals. Final submission should include the demo video, code (with instructions to install and execute) and dataset created.

## **Challenge 2: Speech Language Recognition**

### **Goal:**

- To tackle the mentioned scenario, develop an AI based audio language recognizer which can accept user voice in real time and display the language spoken.
- Participants are free to develop/customize any AI model (statistical/Machine learning/Deep Learning model) to achieve this goal. Ready-made Deep Learning architectures or pretrained models from internet are highly discouraged for submission. The participants should develop a AI speech model which can recognize minimum 3 languages (English and two other languages of their choice) at a time.
- One English dataset is mandatory to include for the model.

### **Evaluation Criteria:**

- Participants can demonstrate the language recognition system using screen recording video. Video recording should demonstrate the real time recognition of 3 languages. Recognizing multiple languages (more than 3) one after the other in real time is highly encouraged. Final submission should include the demo video, code (with instructions to install and execute).

## **Registration and Event management:**

Registration of the event started on 10<sup>th</sup> July 2022 and a total of 33 teams registered for the event, from all over the country. A total of 14 teams were qualified for the final round.

Throughout the presentation session, there was strong and lively communication between teams and jury members. Jury members gave excellent constructive criticism alongside their valuable suggestions to participating teams. All the attendees, students and delegates demonstrated great satisfaction towards the event as well as participating teams expressed their gratitude with a positive feedback.

The event was anchored by Ms. Keshvi Pipwala and Ms. Tanushree Doctor, III Year Computer Engineering Student of SCET, Surat.

The event was very well-managed by Dr. Chirag Paunwala, Chair, IEEE SPS GS, Prof. Sarosh Dastoor, Advisor, IEEE SPS SCET SBC, Dr. Nirali Nanavati, Digital Content Chair, IEEE SPS GS, and Prof. Dhatri Pandya.

## **Prize:**

**Total Prize worth \$1500 USD**

- All the Winners were awarded with Trophy and Certificate of Appreciation.
- All the Participants were given Certificate of Recognition.

## **Jury Members:**

### **1) Dr. Ahlad Kumar:**

Dr. Ahlad Kumar received the B.Tech degree in Electronics and Communication Engineering from Jamia Millia Islamia, India, in 2005. He completed his M.Tech and Ph.D. degree from ABV-IIITM and University of Malaya in 2005 and 2016 respectively. From 2017 to 2019, he was a Postdoctoral Research Fellow with Concordia University, Montreal, Canada. He is currently an Assistant Professor at Dhirubhai Ambani Institute of Information and Communication Technology, India. Dr. Kumar has served as a reviewer for several international journals and conferences. His research interests include image processing and analysis, machine learning, and deep learning.

### **2) Dr. Priyanka Sharma:**

Dr. Priyanka Sharma have work experience of over 23 years that spans both Industry and Academia, She specialize in leading AI and Data Analytics based application development and integrated solution design for various inter-disciplinary domains like Industrial Automation, Healthcare, Pharma sectors.

Currently, She is working as Vice President Projects - AI at Samyak Infotech Pvt Limited, a software based company that has made its mark for providing end to end Enterprise Solutions for Logistics Management Companies in US, Shipping companies in UK and several other hardware based projects like Stability Chambers and IoT based preventive maintenance systems for various Industries, Healthcare and Pharma sectors. She is also member of the National Level Subject Expert committee (for AI Projects) of some of the project funding scheme of DST (Government of India) and am Executive Committee Member of Computer Society of India - AC.

### **3) Dr. Bhaumik Vaidya:**

Dr. Bhaumik Vaidya is an experienced computer vision engineer and mentor. He has worked extensively on OpenCV and Tensorflow Library in solving computer vision problems specifically in the medical and automobile domain. he is a University gold medalist in masters and now doing a Ph.D. in the acceleration of computer vision algorithms built using OpenCV and deep learning libraries like Tensorflow and Keras on GPUs. he is using Tensorflow Lite for deploying deep learning models on mobile platforms like Android and iOS along with his Ph.D. mentor, have also received an NVIDIA Jetson TX1 embedded development platform as a research grant from NVIDIA. he working on GPU Embedded platforms like Jetson Tx1, Jetson nano, and Google Coral as a part of my research.



## **Inauguration of Event:**

The inaugural ceremony of the R10(Asia Pacific) Level on “Multimedia Signal Processing Cup 2022” commenced with the lighting of a lamp by a group of dignitaries of Sarvajanik University and Sarvajanik College of Engineering & Technology - Prof. Persi Engineer (Provost, SU), Prof. Hiren Patel (Principal, SCET), Prof. Nehal Shah (Head, Department of Electronics & Communication), Prof. Chirag Paunwala (Dean R&D, SCET and Chair IEEE SPS GS) and Prof. Sarosh Dastoor (Membership Development Chair, IEEE SPS GS). The program was followed by Saraswati-Vandana. Volunteers have done a floral welcome of all the dignitaries and jury members.

Prof. Hiren Patel formally welcomed all the dignitaries present on the dais and participants from various parts of the country & students. He mentioned the significance of taking part in such project competitions and its aims of bringing together a core group of AI, ML, and Computer Vision all over the R10 Region with significant participation from our own state Gujarat.

Prof. Chirag Paunwala described the importance of the Multimedia Signal Processing Cup, as the event was inspired by the International Level competition VIP Cup and ICASSP. He motivated everyone to actively participate in a such competition to get benefited.

In his address, Prof. Sarosh Dastoor briefed about the importance of the MSP Cup and our esteemed resource persons. He wished for the success of the event and inspired the participants.

Prof. Persi Engineer welcomed the participants and motivated them to learn irrespective of the results. He appreciated the efforts of the IEEE SCET Student Branch and IEEE SPS GS to host such a great event on the premises of SCET.

In the end, Prof. Nehal Shah (Organizing Chair of the Event) delivered vote of thanks to all the dignitaries, jury members, coordinators, and volunteers of the event. She thanked all the guests and participants for gracing the occasion with their solemn presence. She also thanked all the lab assistants for providing all kinds of facilities to conduct the such event in the center.







# Agenda:

SARVAJANIK EDUCATION SOCIETY  
Sarvajanik College of Engineering & Technology, Surat

## MSP CUP 2022

Date : Saturday, 6th August 2022  
Time : 10:00 AM onwards  
Venue : SCET EC AV Room

### AGENDA

Sr. No.	Item	Hosted By	By	Min
1.	Lighting of the lamp	Host	All Dignitaries	<u>3</u>
2.	Floral Welcome to the dignitaries and the Jury members	Host	<ul style="list-style-type: none"><li>Abanob Bhanu (Chair, IEEE SCET SB) to Prof. Persi Engineer, Provost, SU</li><li>Muskan Jhavar (Secretary, IEEE SCET SB) to Prof. Hiren Patel, Principal, SCET.</li><li>Takshil (Vice Chair, IEEE SCET SB) to Dr. Ahlad Kumar</li><li>Aarya Shah to Dr. Bhaumik Vaidya</li><li>Online welcome to Dr. Priyanka Sharma</li></ul>	<u>3</u>
3.	Welcome speech	Host	Prof. (Dr.) Hiren Patel, Principal, Faculty of Engg.	
4.	Motivation for the event	Host	Prof.(Dr.) Chirag Paunwala, Dean R&D , Chair IEEE SPS GS	<u>3</u>
5.	About MSP Cup	Host	Prof. Sarosh Dastoor, Membership Development Chair IEEE SPS GS	<u>3</u>
6.	Inauguration of the MSP Cup event	Host	Prof. Persi Engineer, Provost, Sarvajanik University	
7.	Vote of Thanks	Host	Dr. Nehal Shah, ECE HoD, SCET	<u>2</u>
	Presentation and Viva by the shortlisted participants	Host	Participants - 10 minutes for each presentation followed by 10 minutes discussion.	
Master of Ceremony: Tanushree and Keshvi				



## Presentation and Evaluation:













# Gratitude to jury members:

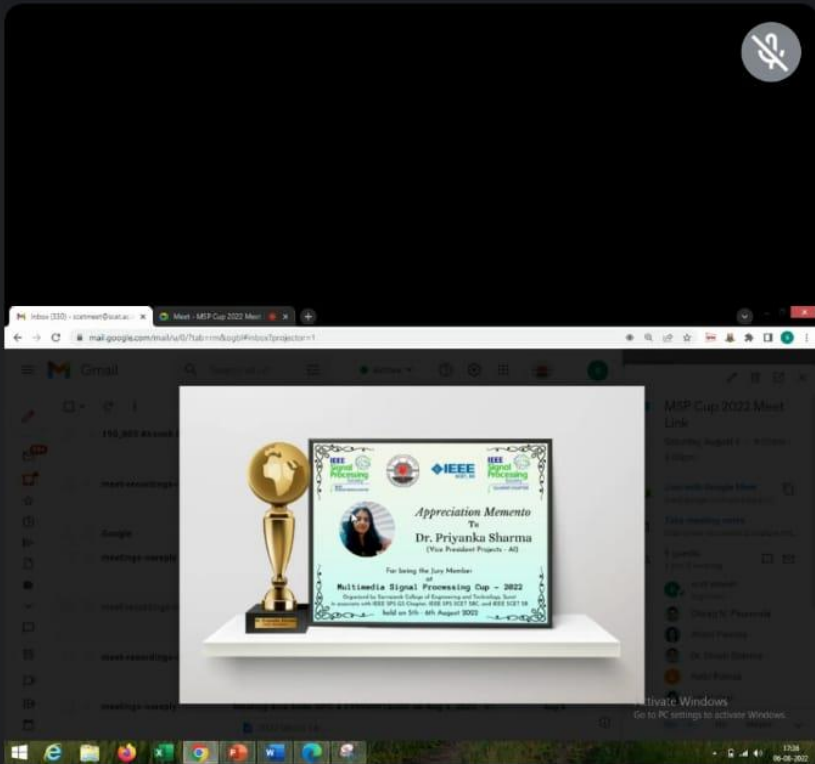




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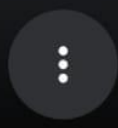
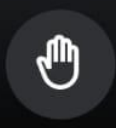


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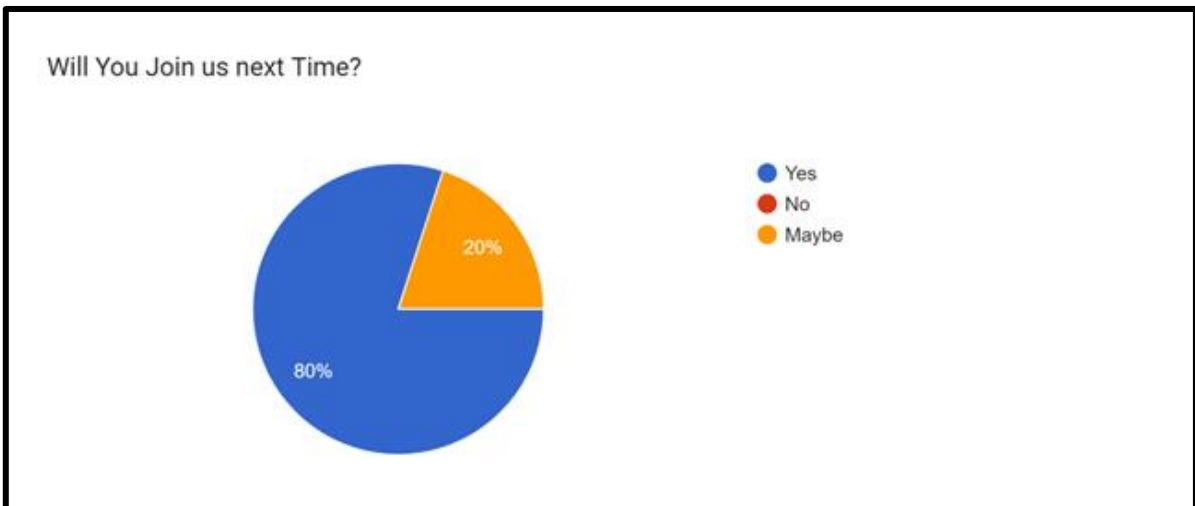
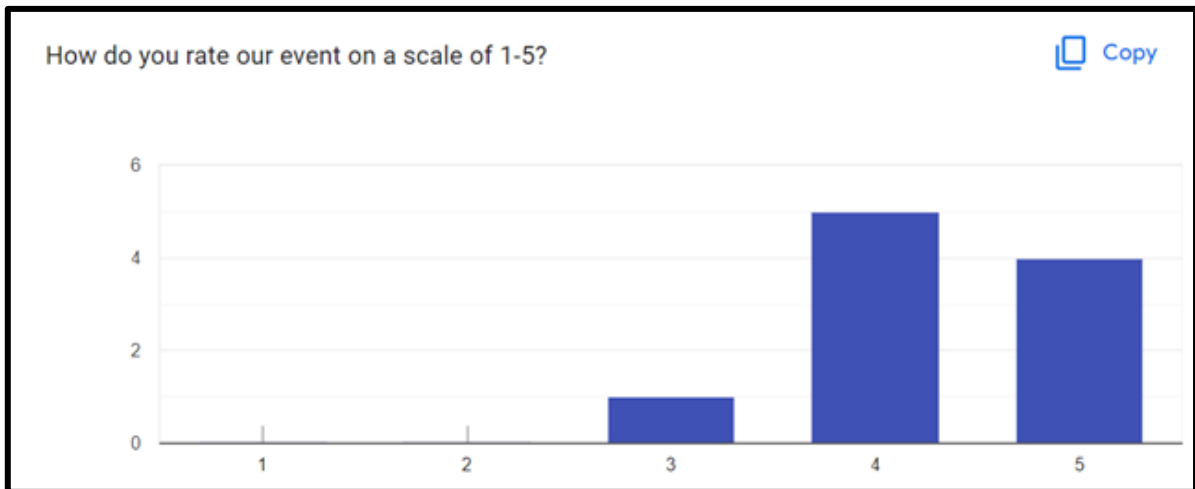
Participant list:

- You (IEEE SCEI, SE)
- scet (S)
- Dr P... (Profile picture)



# Feedback:

Feedback was provided by the participants, jury members, and Prof. Mita Paunwala (Vice-Chair, IEEE SPS GS).



- In Future Which kind of competition you want?
- Hardware + software based application
  - Related to web
  - A competition related to mixture of domains
  - HACKATHON
  - We want competitions just like this which solves the real world problems
  - Quiz based

Your Experience writes here. Thank you to be part of this event

It was very enjoyable event..

I learned lot of things from this event so thank you

The event was long and they should have provided accommodation. For lunch only 100 rs was given.

Nice event. Very educative

We got the experience of national level competition and got to learn new things other than regular syllabus.

Experiace was good. The jury was very knowledgeable

Thank you so much invite us

It was a great experience !

Me and my team mate learn so mang things. We got to know where we were lacking. Thr support and help was great just can't say it. And overall everything was to good

Your valuable suggestions.

NA

Next, time please hold the event in a big hall

Good event. Learnt alot

Excellent

I enjoyed participating the competition just felt nervous when they suddenly decided to present in front of everyone  
Other than that it was good

Organization is amazing. Keep notify in advance.

The online method of presentation could have been made better.

The arrangement and coordination good. Nothing to change. Just keep it up.





## Winners:

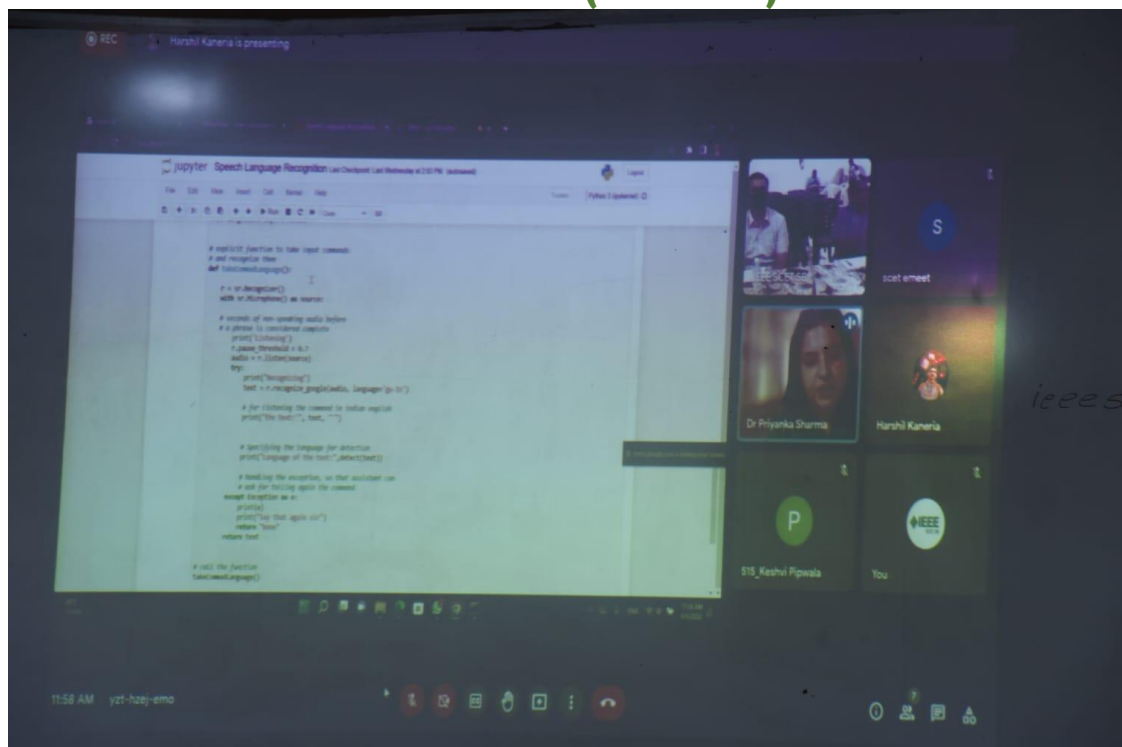
### Challenge 1: Exercise pose recognition and counting sets

## WINNERS

### 1<sup>st</sup> Prize



### 2<sup>nd</sup> Prize (Online)



## Challenge 2: Speech Language Recognition

### WINNERS

#### 1<sup>st</sup> Prize



#### 2<sup>nd</sup> Prize



## WINNER LIST

	<b>1<sup>st</sup> Prize</b>	<b>2<sup>nd</sup> Prize</b>
<b>Challenge 1: Exercise pose recognition and counting sets</b>	<p><b>College Name:</b> Sarvajanik College of Engineering and Technology, Surat</p> <p><b>Team Member's Name:</b></p> <ul style="list-style-type: none"><li>• Deepak Shamsheer</li><li>• Aleemuddin Mombasawala</li><li>• Niket Singla</li><li>• Rahul Agarwal</li><li>• Aarya Shah</li></ul> <p><b>Team Mentor Name:</b></p> <ul style="list-style-type: none"><li>• Dr. Nehal Shah</li></ul>	<p><b>College Name:</b> MKSSS's Cummins College of Engineering for Women, Pune</p> <p><b>Team Member's Name:</b></p> <ul style="list-style-type: none"><li>• Sandipta Sahoo</li><li>• Fatma Bano Sheikh</li><li>• Darshana Pondkule</li><li>• Shreya Deshmukh</li></ul> <p><b>Team Mentor Name:</b> Dr. Ashwini M. Deshpande</p>
<b>Challenge 2: Speech Language Recognition</b>	<p><b>College Name:</b> Sarvajanik College of Engineering and Technology, Surat</p> <p><b>Team Member's Name:</b></p> <ul style="list-style-type: none"><li>• Vaishvi Pandya</li><li>• Aks Patel</li><li>• Jeet Bari</li><li>• Saqlain shaikh</li><li>• Sanket Iyer</li></ul> <p><b>Team Mentor Name:</b></p> <ul style="list-style-type: none"><li>• Prof. Chintan Panchal</li></ul>	<p><b>College Name:</b> Institute of technology in Indore, Madhya Pradesh</p> <p><b>Team Member's Name:</b></p> <ul style="list-style-type: none"><li>• Amit Dhavale</li></ul> <p><b>Team Mentor Name:</b></p> <ul style="list-style-type: none"><li>• Pavan Kumar Kankar</li></ul>







## Volunteer's Team:



**Report Compiled by:** Abanob Bhanu, Chair, IEEE SCET SB and Muskan Jhawar, Secretary, IEEE SCET SB