



IEEE - MVSR STUDENT BRANCH  
Student Branch Code: 12161, School Code: 41329276



## DESIGN OF EMBEDDED SYSTEM USING ARDUINO

IEEE MVSR CASS (Circuits and Systems Society) Student Branch Chapter in collaboration with Department of Electronics and Communication Engineering, MVSREC has organized a two day hands-on workshop on “Design of Embedded System using Arduino” on 27<sup>th</sup> March 2023 and 28<sup>th</sup> March 2023. The main objective of this workshop was to help the students of 3<sup>rd</sup> year engineering understand the basic procedures for working with Arduino and explore further. It helps them to focus on getting up and running with Arduino quickly.

### Student Branch Mentor:

Dr. Atul Negi,  
Professor,  
School of CIS,  
University of Hyderabad

### Student Branch Advisor:

Dr. G. Kanaka Durga,  
Principal and Professor,  
MVSR Engineering College.

### Student Branch Counsellor:

Dr. D. Hari Krishna,  
Associate Professor, EEE Dept.,  
MVSR Engineering College.

### Student Branch Executive Committee:

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Women in Power	Ms. Kuntoori Shravani

### WIE Student Branch Advisor:

Mrs. G. Ushasri,  
Assistant Professor, IT Dept,  
MVSR Engineering College.

### PES Advisor:

Mr. Y. Laxmi Narasimha Rao,  
Assistant Professor, EEE Dept.,  
MVSR Engineering College.

### CS student branch advisor:

Mrs. B. Saritha  
Associate Professor, CSE Dept.,  
MVSR Engineering College.

### CASS Student Branch Advisor:

Mrs. S. Aruna  
Assistant Professor, ECE Dept.,  
MVSR Engineering College.

### Computer Society:

Chair	Mr. M. Hareen
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Joint Secretary	Ms. Ch Venkata Satya Sreeya
Treasurer	Mr. K Kranthi Chaitanya Goud
Women in Computing	Ms. Anoushika Boddupalli

### Circuits & Systems Society:

Chair	Mr. Gautham Purohit
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Secretary	Ms. Mudumba Harshitha
Joint Secretary	Ms. Jindam Pragna
Treasurer	Mr. Erram Sai Vineeth

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## Session Details:

**Date:** 27 March, 2023 – 28 March, 2023

**Timings:** 9:00 AM to 4:00 PM

**Number of Attendees:** 50

## Resource Person:

**Dr. M. Shyam Sunder:** Dr. M. Shyam Sunder is an Assistant Professor in the Department of ECE, University College of Engineering, Osmania University, Hyderabad. Currently, he is holding the position of Joint Director, UG, Examination Cell, UCE, OU. He holds a Ph.D degree from Osmania University, M. Tech (Microwave engineering) from Maulana Azad National Institute of Technology, Bhopal, BE (ECE) from Institution of Electronics and Tele-communication Engineers New Delhi and Diploma in ECE from Q.Q. Govt Polytechnic, Hyderabad. He published more than 25 research papers in reputed Journals and conferences. He received Best Paper Award for IEEE conference (UPCON) in 2017. He was associated with CARS project from **DRDO**, Hyderabad on Radar signal processing. He has successfully completed one consultancy project on “Implementation of PCR Machine for Biomedical Applications using ARM controller” to **SIRF Bio systems Pvt Ltd**, Hyderabad. His research interests include Signal Processing and Embedded systems.

**Maturi Venkata Subba Rao (MVSR) Engineering College**  
(An Autonomous Institution)  
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Affiliated to Osmania University & Approved by AICTE  
Counselling code EAMCET/E CET/ICET: **MVSR** PGECET: **MVSR1**

**IEEE MVR Student Branch**

**CAS**  
IEEE CIRCUITS AND SYSTEMS SOCIETY

**IEEE MVR CASS SBC**  
In association with  
**ECE Dept, MVSREC**  
Presents a Two-Day Hands-On Workshop on  
**DESIGN OF EMBEDDED SYSTEM USING  
ARDUINO PROGRAMMING**

27th -28th March, 2023

**FACULTY COORDINATOR**  
Mrs.S.Aruna  
IEEE MVR CASS Student  
Chapter Advisor  
9704231417

**STUDENT COORDINATORS**  
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**Register Here:**  
[https://docs.google.com/forms/d/e/1FAIpQLSeAY-IFwXG-3IEIPq8EgKC-VdVOCVtYD7aD2j1-ZwbazccD-Xg/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSeAY-IFwXG-3IEIPq8EgKC-VdVOCVtYD7aD2j1-ZwbazccD-Xg/viewform?usp=sf_link)

**ECE Block, MVSREC**

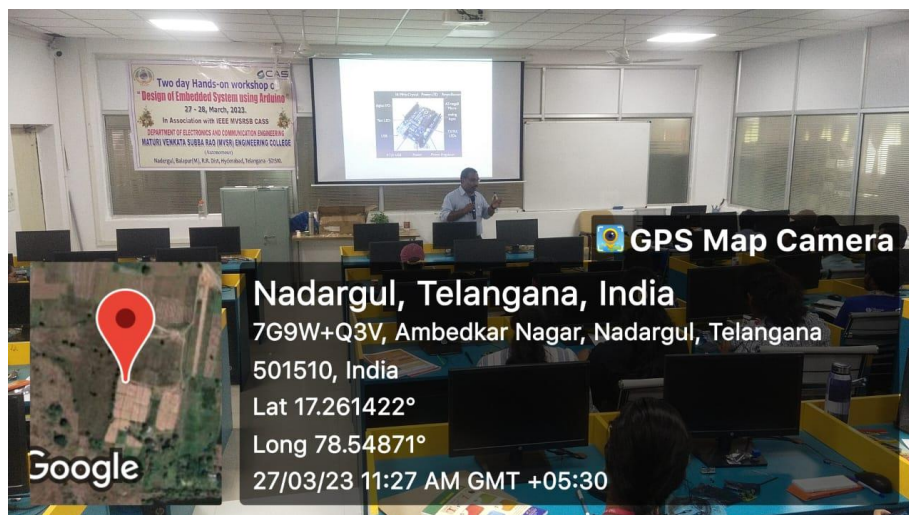
The morning session of day-1 started by Mrs. S. Aruna, IEEE MVR CASS Student Branch Advisor, MVSREC, addressing the gathering and gave a brief information about the schedule that will be followed throughout the course. Then, Ms. M. Harshitha, Secretary, IEEE MVR CASS, welcomed the resource person to the two day hands-on workshop and gave an introduction about the speaker for the session.



**Dr. S. Suryanarayana, HOD of ECE Dept., giving Memento to Dr. M. Shyamsunder**

### **DAY-1: Introduction to Embedded System**

After the introduction, Dr. M. Shyamsunder, came onto the stage and started the session. The main points that were covered in the session were about Embedded System, applications & scope of Embedded System in various industries, An Overview of Open Hardware, Arduino board description, Microcontroller Programming using Embedded 'C' and Arduino IDE software installation.



**Dr. M. Shyam sunder delivering the lecture**





**Participants in the workshop**

In the Afternoon session, Mr. Dr. M. Shyamsunder gave a brief explanation about all the basic pre-requisite concepts needed for design of Embedded System using Arduino. In addition to this, an introduction to the Interfacing of I/O devices was given to the students.

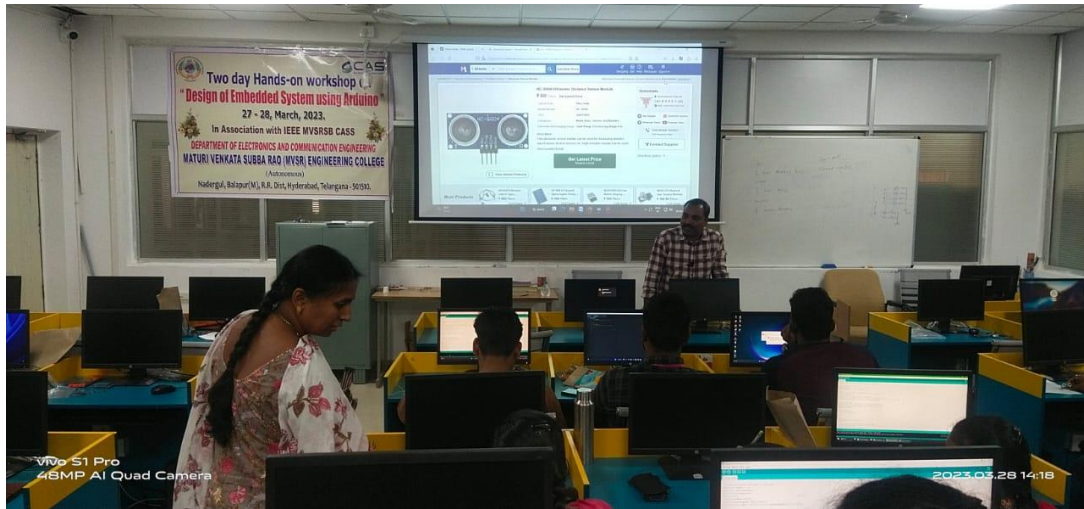


**Students practicing using Arduino uno on Day-1**

Subsequently, he gave a detailed explanation about Interfacing and the following:

- LED: Types-Working-How LEDs glow in sequence? -Interfacing with Arduino
- Switch: Types-Functions-Interfacing
- Buzzer: Types-Applications-Interfacing
- Display Devices: Types-Seven Segment Display-Interfacing-Multiplexing

## DAY-2 Projects



**Participants in the lab**

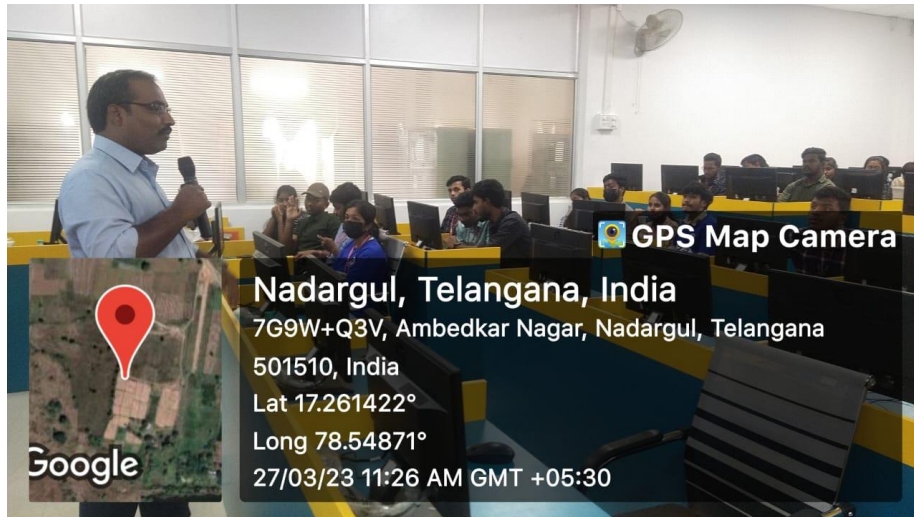
The second day focused more on ADC and Serial Communication. The topics are the following:

- **ADC:** What is ADC?- Use of ADC-Resolution-Uses of different ADC Registers-Interfacing
- **Serial Communication:** Parallel and Serial communication-USART-RS232 Standard-TTL converter-UART Programming

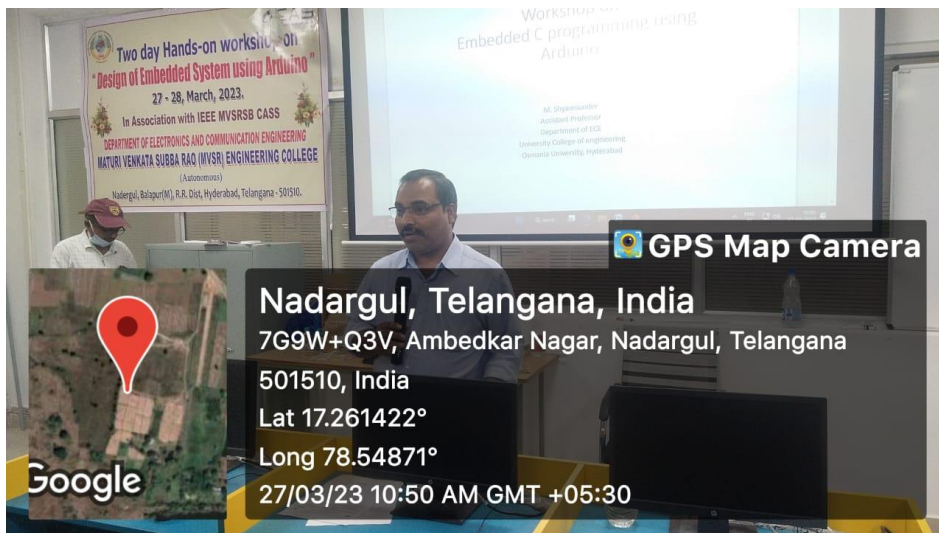
In the afternoon session of Day 2, students formed various teams of size 3 members and selected a project to work on. All the projects were realized on this day under the guidance of resource person and Mrs. S. Aruna.

The following are the projects covered:

- Blinking LED
- De-bouncing
- Counter using Seven Segment
- Digital Voltage Measurement
- PC-MC Communication



**Dr. M. Shyam Sunder addressing the session**



**Dr. M. Shyam Sunder concluding the session**

Finally, on the next day all the students submitted their projects and the two day hands-on workshop finished successfully after the certificates were issued to the students in the Valedictory session.



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