

SRI VENKATESWARA COLLEGE OF ENGINEERING
DEPARTMENT OF ELECTRONICS & COMMUNICATION
ENGINEERING

ARDUINO WORKSHOP On 30th and 31st January, 2023

By Mr.P.Vikram kumar(Alumnus, IIT)

On 30th and 31st January 2023, Department of Electronics and Communication in association with ECE Alumni Association, hosted an Arduino workshop to introduce participants, the basics of Arduino programming and hardware. The workshop was conducted by **Mr.P.Vikram Kumar** and was attended by 30 students from III year ECE.

SVC E DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

ARDUINO WORKSHOP
by
Mr.P.Vikram kumar(Alumnus, IIT)
On 30th and 31st
January, 2023

Syllabus:

- 1) Arduino what is it? features, ports, connections? What it cannot do?
- 2) This grade let's simulate the circuit, check it even if the physical components not available?
- 3) Hardware projects:
 - 1) Basic logic using Arduino for the use for almost all Arduino projects. Blink & Analog read/write
 - 2) Interfacing sensors (for sensors to work)
 - 3) Count numbers & timing segment display in whatever order we want
 - 4) IR based project
 - 5) Ultrasonic sensor to indicate water level, distance measuring
 - 6) IR sensor based project to count the number of items
 - 7) Humidity sensor to measure the water moisture intelligently etc.
 - 8) Ultrasonic based robot
 - 9) Various sensors (about one or two types of sensor based IR based, ultrasonic based, touch sensor based, magnetic sensor based, I)
 - 10) Home automation
 - 11) Finding the speed of the motor
 - 12) LCD show message like keyboard & joystick
 - 13) Arduino interfacing with OCTANE/ S&W/ module



Timing: 9:00AM - 3:00PM
Venue: Microprocessor Lab

FACULTY COORDINATORS:
Dr.D.Menaka, Ms.K.Srividya, Ms.S.Kalyani
Ms.L.Arjun, Mr.M.K.Varadarajan

INVITATION FOR THE ARDUINO WORKSHOP

ABOUT THE TRAINER:

Mr.P.Vikram Kumar has done his undergraduation in ECE at Shadan College of Engg. &Tech, Hyderabad, AP and his M.S in Signal Processing at IIT Madras. He has been a research scholar at IIT-M till 2012.He has been a DSP Engineer with some work experience on Audio codecs and speech codecs. He has been a faculty, serving many institutions and now a self employed person as a MATLAB Trainer. He is a reviewer of IET journal of Signal Processing. He has 3 publications to his name in the area of Signal

Processing and has taken up many roles as interviewing panel member/Event organizer/Freelance writer/Editor and the like. He is a notable resource person at several MATLAB/Octave/Scilab based workshops on various topics of ECE such as Signals & Systems, Audio & Image processing.

Syllabus taught during the Workshop:

- 1) Arduino-What is it?/features / ports/ What's on it?/ What it can(not!) do?
- 2) Tinkercad-Simulate the circuits/ projects (even if the physical components are not available)
- 3) Hardware projects
- 4) The two basic programs that form the core for almost all Arduino projects :Blink & Analog read serial
- 5) Interfacing sensors like fire sensor to warn
- 6) Getting numbers 0 to 9 on 7 segment display in whatever order we want
- 7) RFID based project
- 8) Ultrasonic sensor to indicate water level / distance measuring
- 9) IR sensor based project to count no of items
- 10) Humidity sensor to actuate water motor intelligently etc
- 11) Bluetooth based robot
- 12) Variations in robots(one or two types: fire sensor based/ IR based/ Ultrasonic based / touch sensor based/ magnetic sensor based)
- 13) Home automation
- 14) Finding speed of motor
- 15) LCD show message like 'satyamEva jayatE'
- 16) Arduino interfacing with OCTAVE/ Scilab / MATLAB

Day 1:

On the first day of the workshop, the participants were introduced to the basics of Arduino programming. The session started with an introduction to Arduino, its history, and its applications. Then, the trainer demonstrated the basic programming concepts like variables, data types, and conditional statements. Later, the trainer guided the participants through the practical implementation of a few basic projects like the blink project, which involved blinking an LED, ultrasonic sensor project, which involved detecting the distance of

an object from the sensor, and IR sensor project, which involved detecting the presence of an object.

The trainer provided detailed information on the hardware components required for each project, the wiring diagram, and the code required to program the Arduino board. The participants were encouraged to ask questions and clarify their doubts.

Day 2:

On the second day of the workshop, the participants were introduced to advanced concepts like RFID module and Tinkercad implementation. The trainer started with an introduction to RFID technology, its working principle, and applications. The participants were then introduced to the RFID module and were shown how to connect it to the Arduino board.

The trainer then demonstrated the practical implementation of an RFID-based project, where the participants were taught how to use an RFID reader to read data from an RFID tag and display it on the serial monitor. The participants were also introduced to Tinkercad, an online simulation software, and were taught how to create circuits and simulate their projects on it. The trainer provided detailed information on how to use Tinkercad and how to create a virtual circuit.



SNAPS TAKEN DURING THE WORKSHOP

Conclusion:

The Arduino workshop was an informative and engaging learning experience for the participants. Overall, the workshop was a great success, and the participants left with a solid understanding of the basics of Arduino programming and its practical applications.

Number of participants: 30

FACULTY CO-ORDINATORS:

Dr.D.Menaka
Ms.K.Srividhya
Ms.S.Kalyani
Ms.L.Anju
Mr.M.K.Varadarajan



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On 30th and 31st

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The two basic programs that form the core for almost all Arduino projects ..Blink & Analog read serial

Interfacing sensors like fire sensors to warn

Getting numbers 0 to 9 on 7 segment display in whatever order we want

RFID based project

Ultrasonic sensor to indicate water level/ distance measuring

IR sensor-based project to count the number of items

humidity sensor to actuate the water motor intelligently etc.

Bluetooth based robot

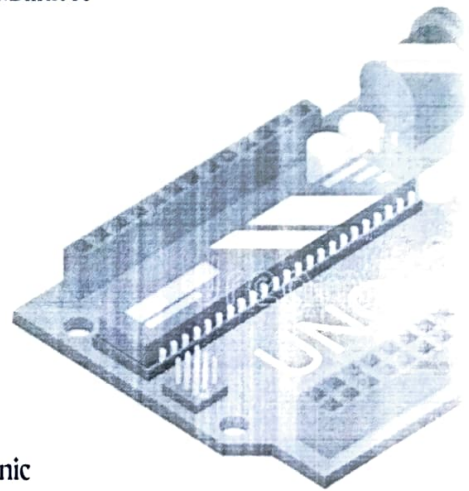
Variations in robots(one or two types: fire sensor based/ IR based/ ultrasonic based/ touch sensor based/ magnetic sensor based..)

Home automation

Finding the speed of the motor

LCD show message like 'satyamEva jayatE'

Arduino interfacing with OCTAVE/ Scilab/ matlab




FACULTY CO-ORDINATORS

Dr.D.Menaka, Ms.K.Srividhya, Ms.S.Kalyan

Ms.L.Anju, Mr.M.K.Varadaraja

Timings: 9:00AM - 3:00PM

Venue: Microprocessor Lab


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DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING
HANDS ON WORKSHOP ON ARDUINO PROGRAMMING

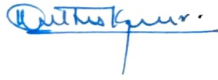
DATE: 30/01/2023 & 31/01/2023

Registration Form

Sl No	Timestamp	Email Address	Name of the participant	Batch	Register No	Mobile no
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2	1/29/2023 10:50:04	2020ec0760@svce.ac.in	ABU AKASH B	A	2127200701007	9566240219
3	1/29/2023 10:05:09	2020ec0437@svce.ac.in	Adithya N	A	2127200701008	7358346748
4	1/29/2023 14:54:56	vadithya938@gmail.com	Adithya V	A	2127200701009	9345801083
5	1/29/2023 9:59:47	2020ec0210@svce.ac.in	Alamelu A	A	2127200701013	7603822628
6	1/29/2023 9:28:29	2020ec0694@svce.ac.in	ARAVIND K	A	2127200701017	6382994228
7	1/29/2023 14:47:31	2020ec0743@svce.ac.in	Aravindh Goutham M	A	2127200701019	7358302358
8	1/29/2023 8:48:40	2020ec0314@svce.ac.in	ASHRATHA M R	A	2127200701022	8056180608
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15	1/29/2023 9:49:08	2020ec0692@svce.ac.in	Guru Vignesh M	A	2127200701037	9445475425
16	1/28/2023 22:47:27	2020ec0710@svce.ac.in	Harendharan B	A	2127200701038	7305417211
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41	1/29/2023 20 00 59	2020ec0902@svce.ac.in	Vignesh s	C	2127200701317	9884766066


Faculty co-ordinators



Speakers Profile

வணக்கம்/ नमस्कार/ ಸಮಸ್ಯಾ/ नमस्कार/ नमस्ते/ ଶୁଣିବେ/നമസ്കാരം

P. Vikram Kumar

Vikram Kumar, known to the society as Vikram bhayyaa..has done his Undergraduation in ECE at Shadan College of Engg.& Tech, Hyderabad, AP and later his M.S in Signal Processing at IIT-Madras. He has been a Research Scholar at IIT-M till 2012.

He has been a DSP Engineer with some work experience on Audio codecs and speech codecs. He has been a faculty, serving many institutions and now a self employed person as a MATLAB Trainer. He is a reviewer of IET journal of Signal Processing.

He has 3 publications to his name in the area of Signal Processing and has taken up many roles as Interviewing Panel member/ Viva examiner/ Judge for projects demo/Motivational speaker/ Math& Science promoter/Event organizer/ Freelance writer/ Editor and the like.

He is a notable **Resource person** at several **MATLAB/ Octave/ Scilab** based workshops on various topics of ECE such as Signals & systems, DSP, Control Systems, Audio & Image Processing. He has coordinated in arranging for Industrial visits also.

Just 2-3days back, he had been one of the resource person at the national level 'faculty development program on Research Methodology' held at Sree Venkateshwara University, Tirupati.

He strongly believes in

- Teaching the subjects with proper correlation and with a interdisciplinary approach – UNIFIED THEORY of all subjects.
- Teaching by demos, using innovative teaching tools, giving importance to hands on / practicals.
- Encouraging the entrepreneurial ideas from students so that they provide employment to others.
- and emphasizes on the need of educational institutes, the 'Temples of learning', to ban movie songs (as they don't respect women). So also, an educational inst. should only supply vegetarian food.

Few ideas he wish to implement as a Researcher & Teacher are

- Play vital role in bridging the gap between industry and educational institutes – arranging industrial tours, encouraging students to do internships / mini-projects.
- Nurturing the research interest in students, colleagues and aim at publications in journals of international repute.
- Streamlining the strengths of students to develop rural areas around the institute.
- Make the institute a 'all BSNL, all Khadi'
- To inculcate 'One India' outlook in all.

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