



KCES's College of Engineering and Management, Jalgaon


Activity Report

Name of The Activity : Online Workshop on Arduino esim.			
Category of activity		Co-curricular	
Date:	05/04/2021 to 09/04/2021	Participants profile:	TE Electrical Students
Name of Co-ordinator (S)	1. Mr.R.R.Waghulde 2. Mr.R.V.Patil		
Guest/ Experts (If any)	By Spoken Tutorial IIT Bombay		
Objective for conducting activity	<ul style="list-style-type: none">➤ To know how to use arduino application.➤ To get the information about different components used in arduino application.➤ To get the knowledge about programming used in arduino application.➤ To understand interfacing of arduino with AVR-GCC programming.		
Methodology	Through online video lectures		
Out Come	<ul style="list-style-type: none">➤ Participants will able to get the knowledge about arduino application.➤ Participants will Learn the basics of electronics, including reading schematics (electronics diagrams)➤ Participants will Learn how to prototype circuits with a breadboard.➤ Participants will Learn the Arduino programming language and IDE.➤ Participants will learn Program with basic Arduino examples.➤ Participants will learn Prototype circuits and connect them to the Arduino.		

Photos:


IQAC coordinator




Principal
K.C.E.SOCIETY'S
COLLEGE OF ENGG. &
MANAGEMENT, JALGAON

The Spoken Tutorial Project

- Self-explanatory: uses simple language
- Audio-video: uses multisensory approach
- Small duration: has better retention
- Learner-centered: learn at your own pace
- Learning by doing: learn and practise simultaneously
- Empowerment: learn a new **FLOSS** (Free/Libre and Open Source Software)

Target Audience

High school, College and Engineering students

Pre-requisites for Basic level tutorials:

- Basic knowledge of electronics
- Electronic components and connections
- Knowledge of C programming

Additional Pre-requisites for Intermediate level tutorial:

- Assembly language

Workshops

The Spoken Tutorial Project Team conducts workshops on Arduino and other FLOSS using spoken tutorials and gives certificates to those who pass an online test.

For more details, please visit <https://spoken-tutorial.org>

Forum

We have developed a beginner friendly Forum to answer specific questions pertaining to any part of a particular tutorial.

For more details, please visit <https://forums.spoken-tutorial.org>.

The Spoken Tutorial Project is funded by the National Mission on Education through Information and Communication Technology, Ministry of Human Resource Development, Government of India.

Contact us

Email: contact@spoken-tutorial.org
Website: <https://spoken-tutorial.org>

Forum help available to all learners

Content available in 22 Indian languages



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Spoken Tutorial

<https://spoken-tutorial.org>



Scan the QR code to visit Spoken Tutorial website



National Mission on Education through Information and Communication Technology (NMEICT)

www.sakshat.ac.in

Funded by MHRD, Government of India.



What is Arduino?

- Arduino is an open-source electronics platform used for building electronics projects.
- Arduino consists of both a physical programmable circuit board or microcontroller and a software IDE (Integrated Development Environment) that runs on the computer.
- It is used to write and upload computer code to the physical board.
- It is intended for making interactive projects.
- Download Arduino IDE from www.arduino.cc

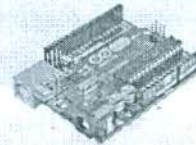
Features of Arduino IDE

- Works on Linux, Windows and Mac operating systems
- Has many in-built functions that make programming simple and easy
- Easy to write code and upload it to the physical board
- Arduino IDE can be used with any Arduino board
- Can be easily adapted for IoT applications
- Arduino can be turned into IoT product by adding ESP8266 wifi module

Benefits of using Arduino Kit

- Arduino boards are less expensive compared to other microcontrollers platform.
- The Arduino programming environment is easy-to-use for beginners.
- For advanced users, the language can be expanded through C++ libraries and AVR-GCC programming language can be added to Arduino programs.
- The modules are published under a Creative Commons license, so circuit designers can make their own version of the module.

- Arduino platform was designed for hobbyists, students and professionals to create IoT applications that play in the human interface world using sensors, motors, etc.
- Arduino can interact with buttons, LEDs, LCDs, motors, speakers, cameras, TV and smartphones, etc.
- Arduino can be connected to one or more sensors to capture the data.



Spoken Tutorials in Arduino series

Basic Level

- Overview of Arduino
- Electronic components and connections
- Introduction to Arduino
- Arduino components and IDE
- First Arduino Program
- Arduino with Tricolor LED and Push button
- Arduino with LCD
- Display counter using Arduino
- Seven segment display
- Pulse Width Modulation
- Analog to Digital Conversion
- Wireless Connectivity to Arduino

Intermediate Level

- Assembly programming through Arduino
- Digital logic design with Arduino
- AVR-GCC programming through Arduino
- Interfacing LCD through AVR-GCC programming
- Mixing Assembly and C programming

Popular uses of Arduino

- Home automation (controlling lights, fans and other appliances) via Android smartphone
- Traffic light control
- PC controlled robotic arm
- Temperature controller
- Anti-theft camera system
- Automated irrigation system
- Feeder for Aquarium
- Garage parking
- Line follower robot

Components required to practise

Arduino Spoken Tutorials

1. Arduino UNO or Compatible Board (1 no.)
2. USB Power Cable (1 no.)
3. Resistor 220 ohms (6 nos.)
4. Resistor 10K Ohms (2 nos.)
5. Resistor 1K Ohms (4 nos.)
6. Breadboard (1 no.)
7. Tricolor LED Common Cathode (1 no.)
8. Red LED Common Cathode (1 no.)
9. Seven segment display - Common cathode (1 no.)
10. Seven segment display - Common anode (1 no.)
11. Decoder - IC 7447 (1 no.)
12. LCD 16 X 2 soldered with pin header (1 no.)
13. Jumper wires Male to Male (20 nos.)
14. Jumper wires Male to Female (8 nos.)
15. Potentiometer 10K Ohms (1 no.)
16. ESP8266 es01 WiFi Black color Module (1 no.)
17. DHT11 Temp_Humidity Sensor Module (1 no.)
18. L293D H-Bridge Motor driver IC (1 no.)
19. Toy Motor (1 no.)
20. Buzzer (1 no.)
21. Push Button Switch (2 nos.)



K.C.E. SOCIETY'S
COLLEGE OF ENGINEERING & MANAGEMENT, JALGAON - 425001
Electrical Engineering Department
Academic Year 2020-21 SEM - II

DATE: 03/04/2021

Schedule for Arduino Workshop

Sr.no.	Date	Topic
1	05/04/2021	Overview of Arduino
2	05/04/2021	Electronic components and connections
3	05/04/2021	Introduction to Arduino
4	05/04/2021	Arduino components and IDE
5	06/04/2021	First Arduino Program
6	06/04/2021	Arduino with tricolor LED and push button
7	06/04/2021	Arduino with LCD
8	06/04/2021	Display counter using Arduino
9	07/04/2021	Seven segment display
10	07/04/2021	Pulse width modulation
11	07/04/2021	Analog to digital conversion
12	07/04/2021	Wireless connectivity to arduino
13	08/04/2021	Assembly of Robot
14	08/04/2021	Robot control using bluetooth
15	08/04/2021	Assembly programming through arduino
16	08/04/2021	Digital logic design with arduino
17	09/04/2021	AVR-GCC programming through arduino
18	09/04/2021	Interfacing with AVR-GCC programming
19	09/04/2021	Mixing assembly and C programming



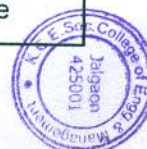
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COLLEGE OF ENGG. &
MANAGEMENT, JALGAON

Kalpesh M. Mahajan
HOD

Mr. Kalpesh M. Mahajan

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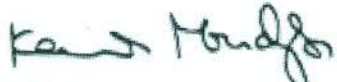
Spoken Tutorial
Project at
IIT Bombay

Certificate of Participation

This is to certify that **NILESH DAYMA** participated in the **Arduino** training organized at **KHANDESH COLLEGE EDUCATION SOCIETY'S COLLEGE OF ENGINEERING AND MANAGEMENT, JALGAON** in **January 2021** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

A comprehensive set of topics pertaining to **Arduino** were covered in the training.

April 30th 2021


Prof. Kannan M Moudgalya
IIT Bombay



Spoken Tutorial is a project at IIT Bombay, started with funding from the National Mission on Education through ICT, Ministry of Education (previously MHRD), Govt. of India



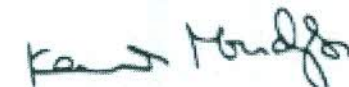
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Certificate of Participation

This is to certify that **URMILA DESHMUKH** participated in the **Arduino** training organized at **KHANDESH COLLEGE EDUCATION SOCIETY'S COLLEGE OF ENGINEERING AND MANAGEMENT, JALGAON** in **January 2021** semester, with course material provided by the Spoken Tutorial Project, IIT Bombay.

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