KG REDDY
College of Engineering & Technology

Accredited by NAAC

Department of Electronics and Communication Engineering

Report of

Certification course on "IoT using Arduino"

From 25/09/2018 to 29/09/2018

Organized

in collaboration with IETE

by

Mr.Bavusaheb B Kunchanur   **Mr. A Vijaya Bhasker Reddy**
Assistant Professor   Assistant Professor
Dept of ECE   Dept of ECE
KGRCET   KGRCET
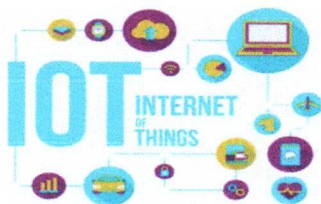
COORDINATOR   **HOD**   **PRINCIPAL**

HEAD
DEPT. OF ELECTRONICS & COMMUNICATIONS ENGINEERING
K.G. REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
CHILKUR (V), MOINABAD, R.R. DIST.501 504.

Principal
KG Reddy College of Engineering & Technology
Chilkur (V) Moinabad (M),
R. R. Dist.

Certification course and hands on session

"IoT using Arduino"

from 25th to 29th of September 2018

Electronics and Communication department of K G Reddy College of engineering and technology organized Certification course on **"IoT using Arduino"** in collaboration with **IETE Hyderabad**. Course was conducted by two experts **Mr. Bavusaheb B Kunchanur**, Assistant Professor at ECE Department KGRCET and **Mr. A.Vijaya Bhasker Reddy**, Assistant Professor at ECE Department KGRCET. Around 31 students from 3rd year ECE branch took part in this Course. Main focus of the Course was to do hands on practical with Arduino uno board and designing IoT applications using arduino/Node MCU. Arduino is an open source development board used by developers and hobbyist for creating projects and prototypes. Arduino has vast collection of supporting libraries developed by open source users across the world. Learning this platform might help students in rapid prototype development their project. Keeping these facts in mind content of Course was designed and delivered.
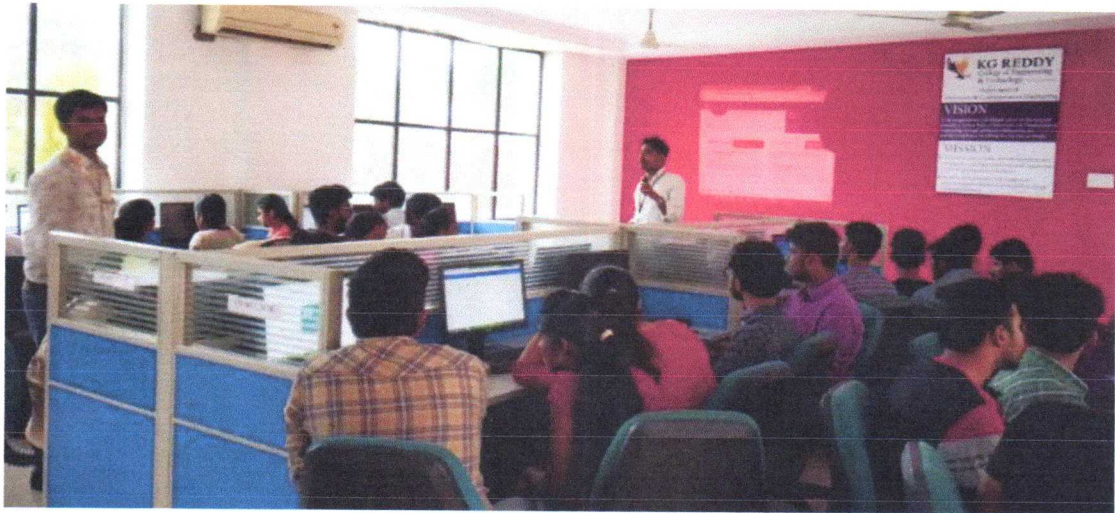
DAY-1:

In the first session students got familiar with various development boards of Arduino and learnt the development environment for Arduino IDE. Working with Arduino I/O pin was interesting and students run small practical like blinking LED, interfacing Pushbutton switch.
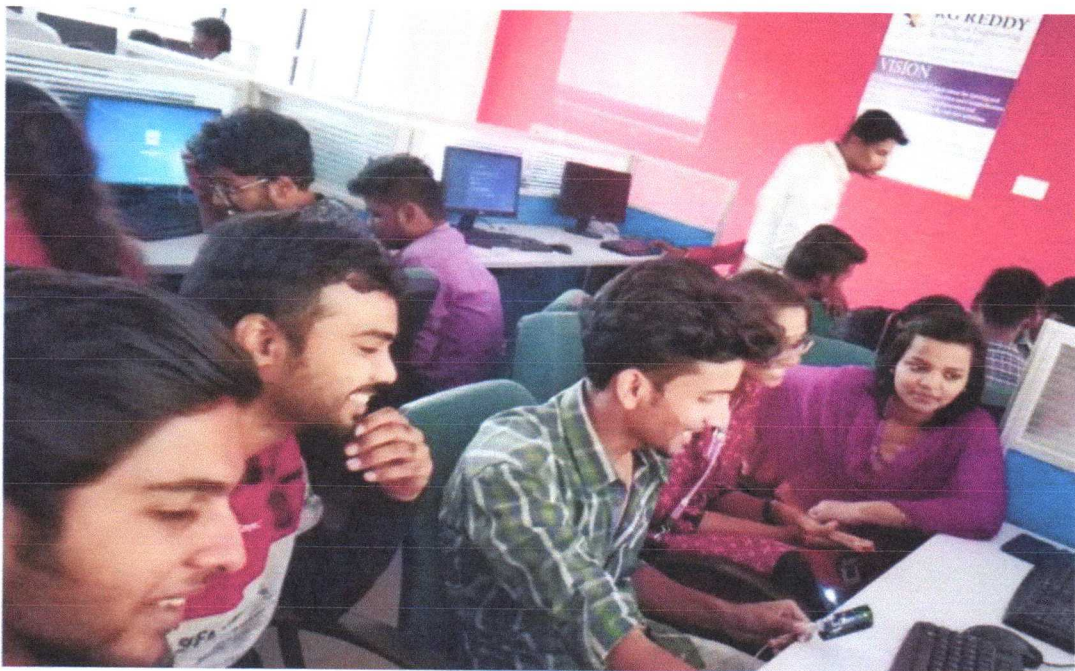

Introduction to Arduino, sensors ad actuators

Installation of Arduino IDE

Blinking LED with delay of 1 sec

DAY- 2

On 26th the working of different sensors was covered and practical implementation for sensor interface was performed. In the second session after lunch Infrared LED based human entry door counter was implemented. Students learnt to interface ultrasonic, Smoke, Temperature sensors and displayed various data on serial monitor


Explaining about sensors

Programming sensors

DAY- 3

On the 27th students learnt working with motors using LM293D and in this session students controlled rotation of DC motor based on the conditions. Students learned controlling DC motors using sensor values, they designed a robot and controlled directions of robot with ultrasonic sensor. Relay concept was demonstrated by experts and students learnt to control home appliances via Arduino. Students also learnt to work with infrared remote and emulated working of Projector IR remote. At the end of the day they designed simple 4 wheel robot with sensors.
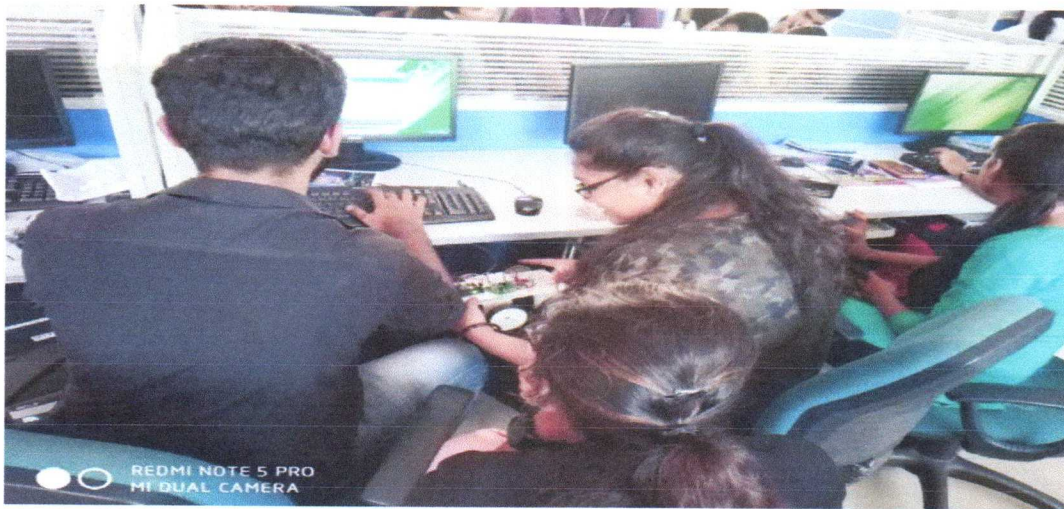
Introduction to motor drivers and controlling the direction of motors with Arduino
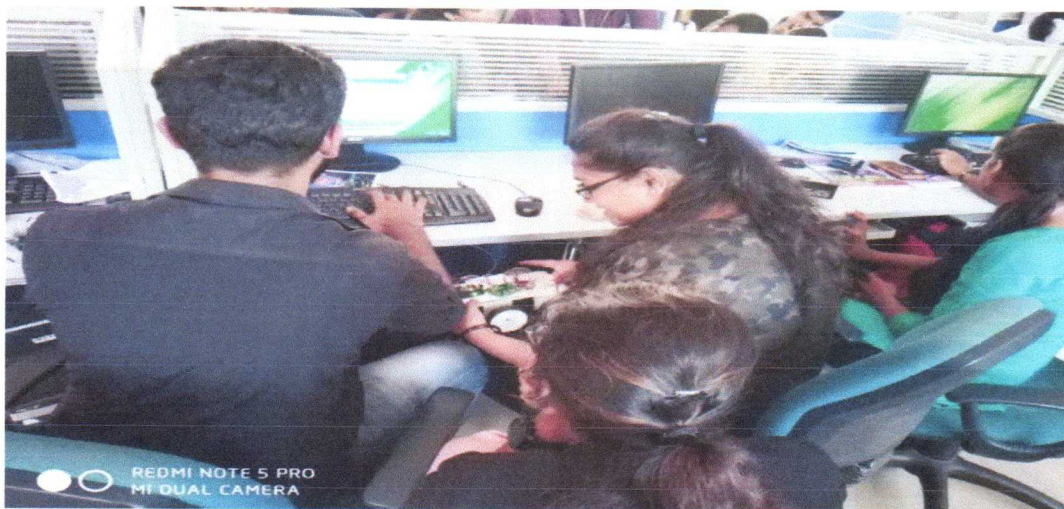
Introduction to motor drivers and controlling the direction of motors with Arduino

DAY- 4

On 28th students learned about Node MCU ESP8266 embedded wifi module with arduino. Adding NODE MCU sketches to arduino IDE and writing program on node MCU was also covered. In the afternoon session they have created an channel in ThingSpeak.com and they have controlled LED through thingSpeak channel. In the last session they have designed an IoT application where, they have interfaced relay and controlled home appliances through internet.So students learnt to implement advance practical of implementing IoT. Overall student learnt the basics of working with IoT using Arduino and gained basic knowledge of various Arduino development boards; Programming environment; onboard features of Arduino Uno: I/O, Analog, PWM, and IoT using Arduino. Feedback students was collected and it suggested that they welcomed this initiative and they are motivated to explore more dimension in this platform also they are willing to use this board in their projects in future.

Introduction to IoT and Controlling relay through internet

DAY- 5

On 29th we have evaluated the learning of students. We have given the real time problem statement and asked the students to design their solution using IoT and Arduino. The students designed deferent solutions using IoT for home automation, industrial automation and agricultural automation.

Studnts solving realtime problems

In the second session, we have conducted a test to evaluate and certify the students

At 4:15pm Prof. M.N.Narsaiah, HOD,ECE, KGRCET issued the certificates. He concluded by addressing the students and explained the motive behind the Course. He suggested the students to do their mini, major projects on Arduino and IoT with the help of faculty members.

Ref No: KGRCET/ECE/2018-19/ 88

CIRCULAR   Date: 21/9/2018

All the students of III-B.Tech I semester ECE are here by instructed to enroll for
the certification course on **"IoT using Arduino"**, which is going to conduct from
25/09/2018 to 29/09/2018. Interested students are instructed to meet Prof.
Bavusaheb.B.k

HOD

HEAD
DEPT. OF ELECTRONICS & COMMUNICATIONS ENGINEERING
K.G. REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
CHILKUR (V), MOINABAD, R.R. DIST.501 SM.

Principal

Principal
KG Reddy College of Engineering & Technology
Chilkur (V) Moinabad (M),
R. R. Dist.

Department of Electronics and Communication Engineering
Two day workshop on IoT using Arduino

S.NO	DAY 1 25/09/2018	TIME
1	Overview of Workshop	9:30-10:30 Am
2	Introduction to Arduino and IoT	10:30-12:00 Pm
3	BREAK	12:00 -1:30 Pm
4	Introduction to Sensors and Actuators	1:30Pm-2:00 Pm
5	Introduction to Arduino IDE And installation of IDE	2:00Pm-3:30Pm
6	Programming and blinking of LED	3:00Pm-4:15Pm
	DAY 2 26/09/2018	
7	Introduction to different sensors	9:30 AM- 11:30 AM
8	Programming different sensors(Temperature, Humidity, Proximity, Ultrasonic, Smoke)	11:30Am -1:00Pm
9	LUNCH BREAK	1:00 Pm -2:30Pm
10	Programming different sensors(Temperature, Humidity, Proximity, Ultrasonic, Smoke)	2:30 -3:45 Pm
11	Project work for the students(Controlling LED by reading different sensor Values)	3:45-4:15 Pm
	DAY 3 27/09/2018	**TIME**
12	Introduction to Robotics and Motor driver	9:30-10:00Am
13	Controlling DC Motors	10:00-10:45 Am
14	Controlling DC Motors	10:45Am-12:00 Pm

15	LUNCH BREAK	12:55 -1:30 Pm
16	Interfacing the Robot With Sensor	1:30Pm-3:00Pm
17	Assignment to the Students(controlling the movements with ultrasonic sensor and IR sensor)	3:00-4:15 Pm
DAY 4 28/09/2018		
18	Introduction to IoT	9:30-10:00 Am
19	Introduction to Node MCU ESP 8266	10:00-12:30 pm
20	LUNCH BREAK	12:30-1:30pm
21	Adding node MCU board to Arduino IDE	1:30-2:30pm
22	Introduction to ThingSpeak and creating a channel	2:30 -3:00 Pm
23	Controlling Home appliances though ThingSpeak cloud (IoT)	3:00 -4:15 Pm
DAY 5 29/09/2018		
24	Assignment on solving real-time problems	9:30-12:30Pm
25	LUNCH BREAK	12:30-1:30pm
26	Practical evaluation of real-time solutions	1:30-2:30Pm
27	Written exams	2:30-3:00Pm
28	Evaluation of written exams and certificate distribution for qualified students	3:00-4:15Pm

HOD

PRINCIPAL

KG REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

Certification course on IoT using Arduino

Attendance List

Sl.No.	Roll No	Name of the Student	Signature				
1	16QM1A0401	BALUSANI MANOJ KUMAR					
2	16QM1A0402	BUYYAKER TARUN KUMAR					
3	16QM1A0403	CHANDRAGIRI CHIRANJEEVI					
4	16QM1A0404	CHEGURI SAI TEJA					
5	16QM1A0406	DIDDE MERCY NIHARIKA					
6	16QM1A0407	GAJJALA CHARITHA REDDY					
7	16QM1A0408	GANGULA SANDEEP REDDY					
8	16QM1A0409	GAVVALA PAVAN KUMAR					
9	16QM1A0410	GONGATI RASHMITHA					
10	16QM1A0411	GORLA SHASHANK KUMAR					
11	16QM1A0412	GURRALA GAYATHRI PADMA KUMARI					
12	16QM1A0413	JANGALI GANESH					
13	16QM1A0414	K SRIVIDHYA					
14	16QM1A0415	KAILASA PRIYANKA					
15	16QM1A0416	KAKULAPATI SESHA SRIVALLI					
16	16QM1A0417	KONDA AVINASH GOUD					
17	16QM1A0418	KONIJETI VENKATESH					
18	16QM1A0419	KOTHAPALLI SRIKANTH REDDY					
19	16QM1A0420	KUPPALA VENKATA SAI CHAITANYA					
20	16QM1A0421	M MANIKANTA REDDY					
21	16QM1A0422	MACHABHAVANA					
22	16QM1A0425	MULAKALA BHUVANA SATYA SAI					
23	16QM1A0426	P SAMARA SIMHA REDDY					
24	16QM1A0427	PALNATI CHAITANYA					
25	16QM1A0428	PANGANURU NARESH PHOKRAN					
26	16QM1A0429	PANTHAM KEERTHI					
27	16QM1A0431	R SIMRAN					
28	16QM1A0432	RAJPUT ADITYA SINGH					
29	16QM1A0433	RAMAIAH SUPRIYA					
30	16QM1A0434	RANGAREDDY SAHITHI					
31	16QM1A0435	S SAI SRIVASTHAVA NAIDU					
32	16QM1A0436	SARVIGARI YESHWANTH SIMHA REDDY					
33	16QM1A0438	TALAKANTI MADHURI					
34	16QM1A0439	TANISHQ CHOUDHARY					
35	16QM1A0440	TIPPANI KRANTHI KUMAR REDDY					
36	16QM1A0441	TOTA NARENDRA					
37	16QM1A0442	VOOTKURI SUDHIR GOUD					
38	17-401	AKSHAY VIHARI					

HOD

HEAD
DEPT. OF ELECTRONICS & COMMUNICATIONS ENGINEERING
K.G. REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
CHILKUR (V), MOINABAD, R.R. DIST.501 504.

PRINCIPAL

Principal
KG Reddy College of Engineering & Technology
Chilkur (V) Moinabad (M),
R. R. Dist.

(15)

Roll No: 16QM1A0410   **Name:** Rashmitha .G.

1. What does GPIO stand for?   [A]

| A. General Purpose Inner Outer Propeller | B. General Purpose Input Output Pins | C. General Purpose Interested Old People | D. General Purpose Input Output Processor |

2. _____ are pre built circuit boards that fit on top of Android   [B]

| A. Sensor | B. Data types | C. Breadboard | D. Sheilds |

3. What license is Arduino distributed under?   [A]

| A. Proprietary with GNU GPL Ambient user interface | B. Proprietary | C. Shareware | D. LGPL or GPL license |

4. What does IDE stand for?   [C]

| A. In Deep Environment | B. Integrated Development Environment | C. Internal Deep Escape | D. IDE |

5. Which board is first to use microcontroller with in build USB?   [C]

| A. LilyPad | B. UNO | C. RedBoard | D. Leonardo |

6. A program written with the IDE for Arduino is called _____   [D]

| A. IDE source | B. Sketch | C. Cryptography | D. Source code |

7. _____ board allows sewn into clothing.   [D]

| A. UNO | B. RedBoard | C. LilyPad | D. Mega |

8. A function is a series of programming statements that can be called by   [A]
name. Which command is called once when the program starts:

| A. loop() | B. setup() | C. (output) | D. (input) |

9. It starts with a /* and continues until a */ What does this do?   [B]

| A. Loads a sketch | B. Makes comments | C. Compiles quicker | D. Makes stars appear |

10. What does GPIO stand for?

| A. General Purpose Inner Outer Propeller | A. General Purpose Inner Outer Propeller | A. General Purpose Inner Outer Propeller | A. General Purpose Inner Outer Propeller |

11. What license is Arduino distributed under?   [C]

A. Proprietary with GNU GPL Ambient user interface   B. Proprietary   C. Shareware   D. LGPL or GPL license

12. What does GPIO stand for?   [A]

| A. General Purpose Inner Outer Propeller | B. General Purpose Input Output Pins | C. General Purpose Interested Old People | D. General Purpose Input Output Processor |

13. What does IDE stand for?   [B]

| A. In Deep Environment | B. Integrated Development Environment | C. Internal Deep Escape | D. IDE |

14. How many types of arduinos do we have?   [C]

A. 5   B. 6   C. 8   D. 6

15 .... are pre built circuit boards that fit on top of Android.   [C]

A. Sensor   B. Data types   C. Breadboard   D. Sheilds

16. A function is a series of programming statements that can be called by name. Which command is called once when the program starts: [D]

A. loop()   B. setup()   C. (output)   D. (input)

17. A program written with the IDE for Arduino is called   [B]

A. IDE source   B. Sketch   C. Cryptography   D. Source code

18. Arduino IDE consists of 2 functions. What are they?   [B]

| A. Build() and loop() | B. Setup() and build() | C. Setup() and loop() | D. Loop() and build() and setup() |

19. Arduino shields are also called as   [B]

| A. Extra peripherals | B. Add on modules | C. Connectivity modules | D. Another Arduinos |

20. How many analog pins are used in Arduino Mega board?   [A]

A. 16   B. 14   C.12   D. 8

KG REDDY
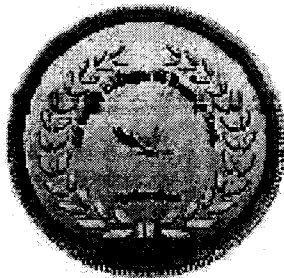College of Engineering
&Technology

CERTIFICATE

Name: RAMAIAH SUPRIYA

Registration No: 16QM1A0433

has successfully completed the prescribed requirements for the award of Certification course on **"IoT Using Arduino"** conducted by department of Electronics and Communication Engineering held from 25/09/2018 to 29/9/2018 in the academic year 2018-2019.

Date: 29-09-2018

Course Coordinator

Principal

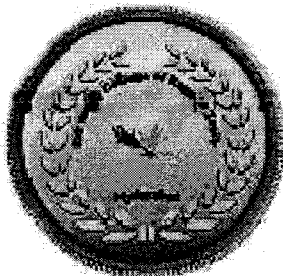**KG REDDY**
College of Engineering
&Technology

CERTIFICATE

Name: RANGAREDDY SAHITHI

Registration No: 16QM1A0434

has successfully completed the prescribed requirements for the award of Certification course on **"IoT Using Arduino"** conducted by department of Electronics and Communication Engineering held from 25/09/2018 to 29/9/2018 in the academic year 2018-2019.

Date: 29-09-2018

Course Coordinator

Principal