Excelssior Education Society's

K.C. College of Engineering and Management Studies and Research

MithBunder Road, Near Hume Pipe, Kopri, Thane (E)-400603

Name of the event: Workshop on Atmel AVR Microcontroller and RTOS
Name of Speaker: Mr. Bhavik Thakkar
Date: 3/02/2016- 4/02/2016

Excelssior Education Society's
K. C. College of Engineering and Management Studies and Research
(Affiliated to University of Mumbai)

Department of Electronics & Telecommunication

Organizes

Two Days Workshop on Atmel AVR Microcontroller & RTOS

On 03/02/2016 & 04/02/2016

Speaker :- Mr. Bhavik Thakker

Registration :- Students from Third Year may register their names to Prof. Deepali Khandekar

FEES:- Rs. 100/- per student

Limited Entries !

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Report for two days workshop on "Atmel AVR Microcontroller & RTOS"

By

Mr. Bhavesh Thakker

Attended by 51 students.

Date : 03/02/16 and 4/02/2016 **Time : 11 am to 04 pm**

Topic covered in workshop

DAY 1:

- Microprocessor, Application, Characteristics.
- Microcontroller, Memory Mapped I/O.
- Difference, I/O mapped I/O
- RISC & CISC
- Block diagram , peripheral.

2 pm onwards practical session

- Atmel AVR
- Device overview

Three basic familier

1. Tiny
2. Mega
3. X mega

Application :

Features of atmega 128.

www.atmel.com to choose the microcontroller.

MNC selector(inbuilt in chip)

Requirement of frequency, RAM, ROM capacity, operating voltage, power, application, USB, channel, temperature, Ethernet.

DAY 2:

Win AVR manual 20100110

Amega 128

- 16 MIPS at 16 MHz
- Program memory + data memory
- 128 KB In-system reprogrammable flash.
- For debug,test, programing available in chip.

Peripheral Features

- 7 ports, 8 bit input/output ports A to G, 7 port is having 5 bit
- Compare mode & capture mode
- Real time counter with oscillator

Special feature

1. Programmable watchdog timmer with on chip oscillator.
2. Power on reset & programmable brown out detection.
3. Internal calibrated RC oscillator.

4. External & internal interrupt resources
5. Sleep mode
6. Software selectable oscillator frequency.
7. 64 pin TQFP package.

Minimize power consumption of AVR X-mega

- Active mode operation
- Sleep mode
- Shown a microcontroller based hardware model is shown
- AVR family architecture
- Flash in atmega 128
- Pragram memory map
- Data memory map
- Code memory
- General purpose register file
- X,Y & Z register
- Status register
- Input – output ports in AVR atmega 128
- Three separate register DDRX, PORTX, PINX
- Programming on PC by student steps

Steps :

- Open AVR studio 4

Program :

1. Write a program in AVR in studio V.4
2. Build the program (f7)
3. Open the x tream burner
4. Open the program file ( )
5. Select the write all
6. See the output
   a) LED
   b) LCD
7. In the digital clock for checking output used HyperTerminal software.
8. In Bluetooth used a AMR app
   a) Ultrasonic
   b) Lux meter
   c) Joystick