INDUSTRIAL TRAINING
ARDUINO & IT'S INTERFACING
WITH
INTERNET OF THINGS - IOT

shreeji
CHARAN ELEETRONICS

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Electronics and Communication System

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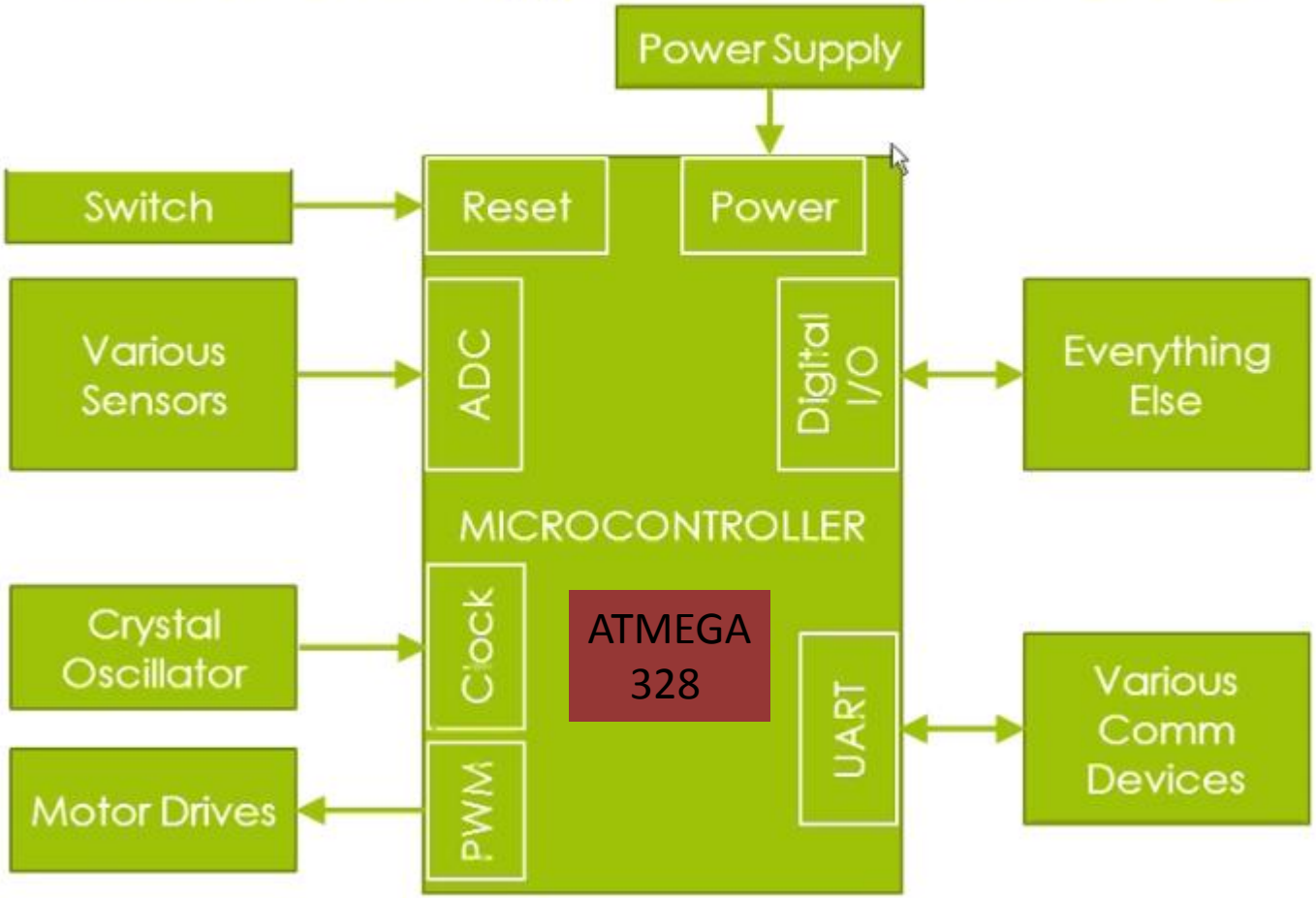
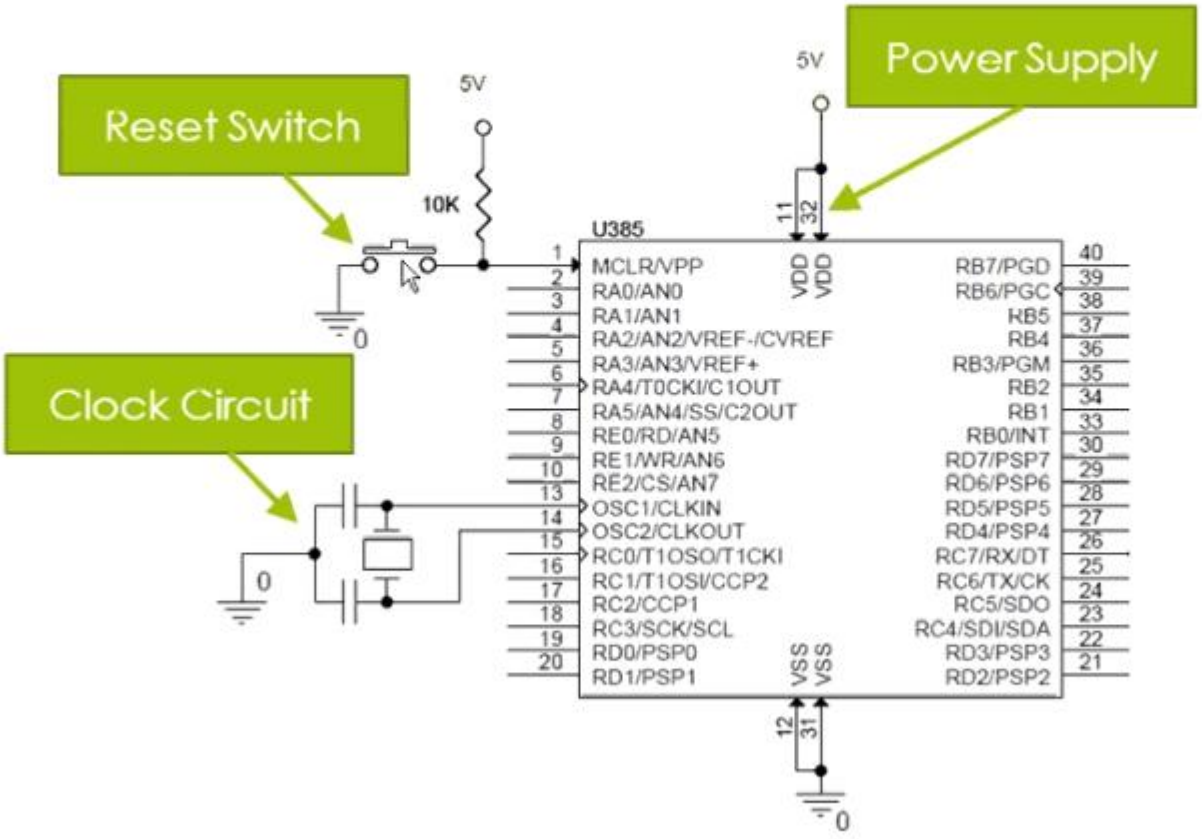
Serial Communication Interfacing

Different Types of Interfaces



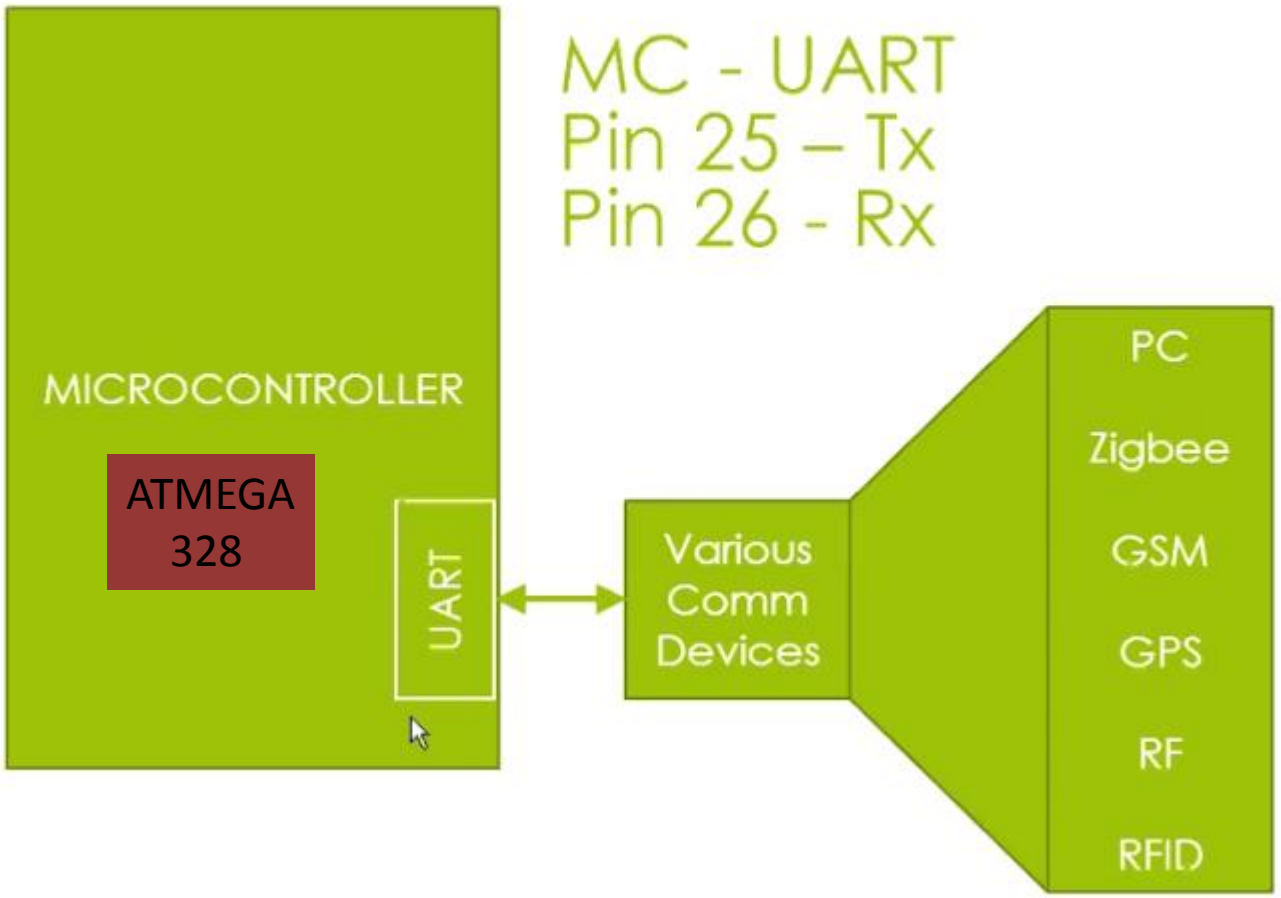
Next >> Minimum Basic Ckt

Power Supply, Clock, Reset



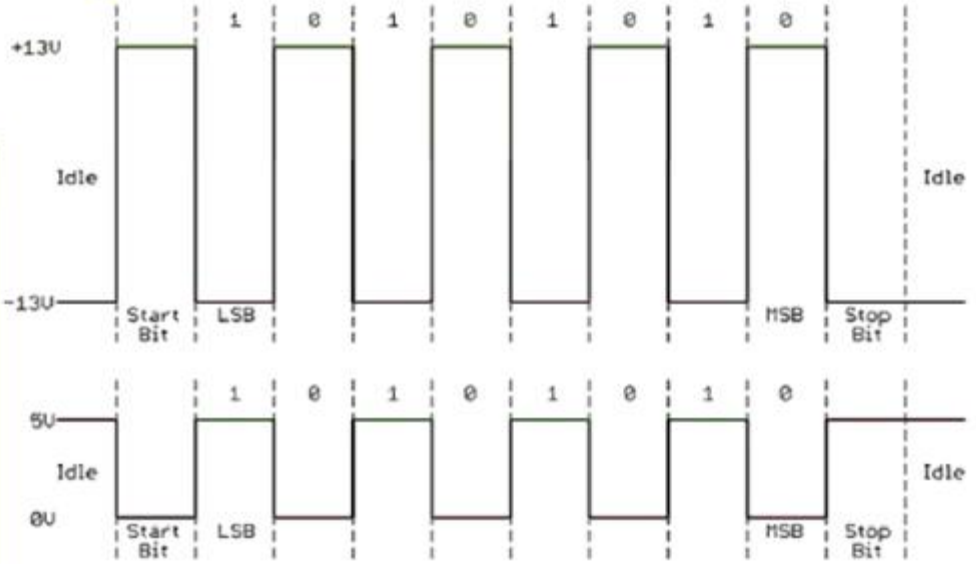
Next >> UART Communication

UART Communication



Next >> Connecting to a PC

Connecting to PC



MICROCONTROLLER

ATMEGA 328

UART

PC Interface

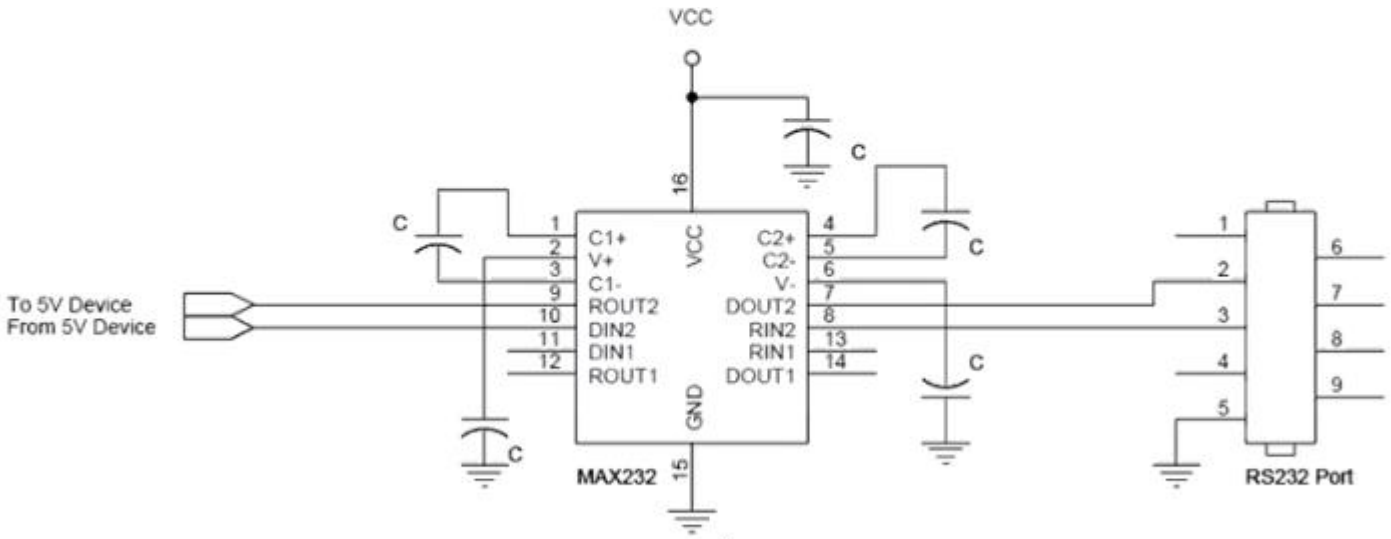
PC (RS232 Port)

Next >> MAX232

IC MAX 232

- MAX232 is a IC that can do the function of voltage conversion.
- It is a dedicated IC meant for RS232 voltage conversions
- Manufactured by Maxim Semiconductors – hence called MAX
- Used for RS232 conversions hence MAX232
- It is a 16 Pin IC that can do voltage conversions in both direction – Tx and Rx
- Works at 5V hence very convenient to use.
- Requires some external passive components for performing the voltage conversion

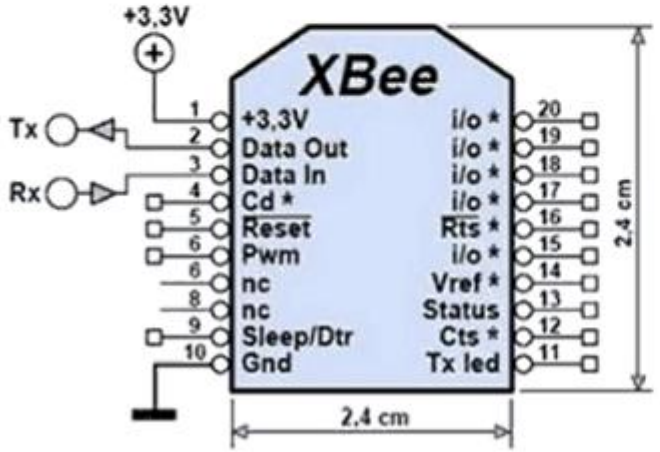
Circuit Diagram



PC Interface Circuit

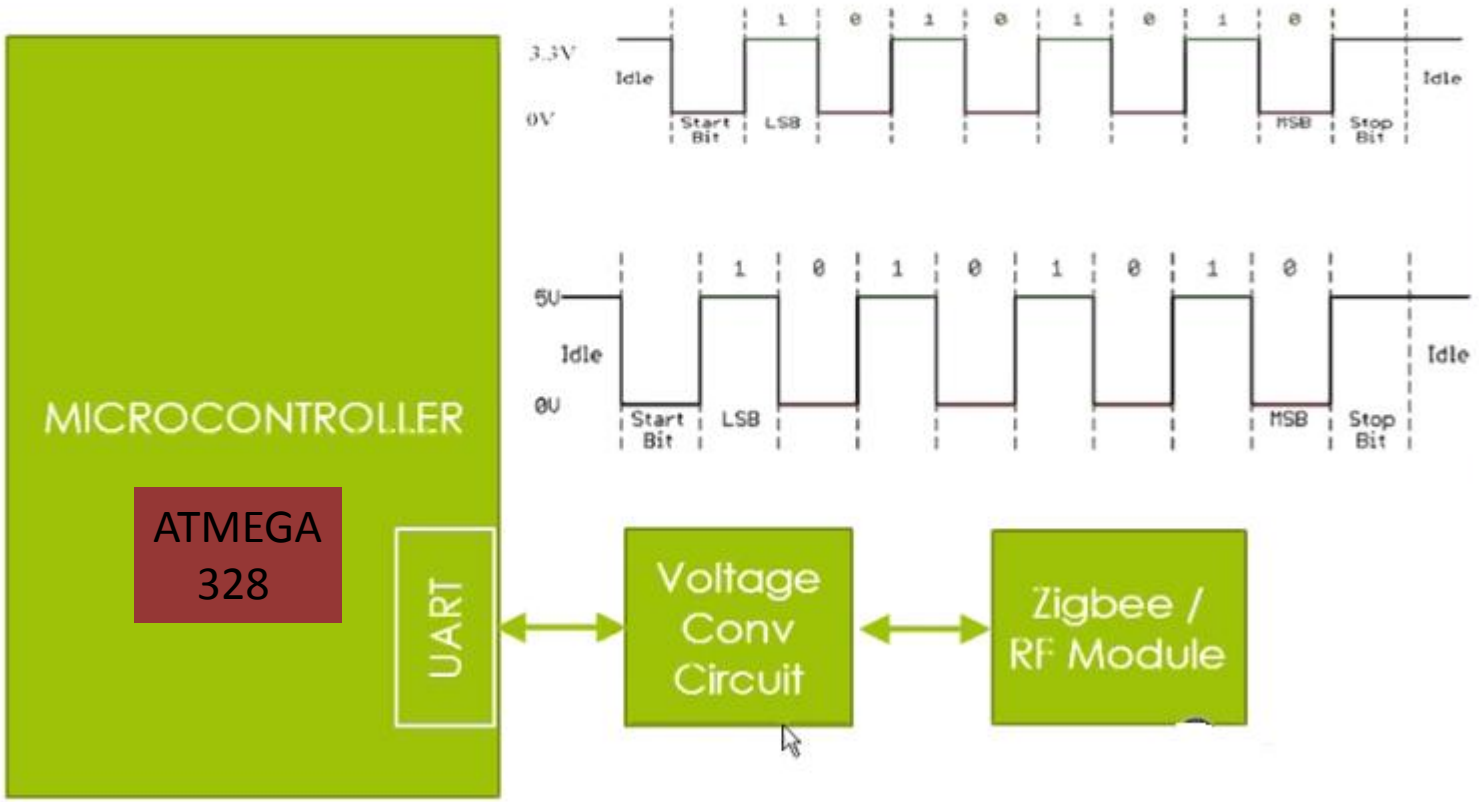
Xbee and Tarang F4

- **Indor Range** 100 ft (30 m)
- **Outdoor Range** 300 ft (100 m)
- **Frequency** 2.4Ghz
- Supply Voltage : 3.3V DC
- 20Pin DIP Package



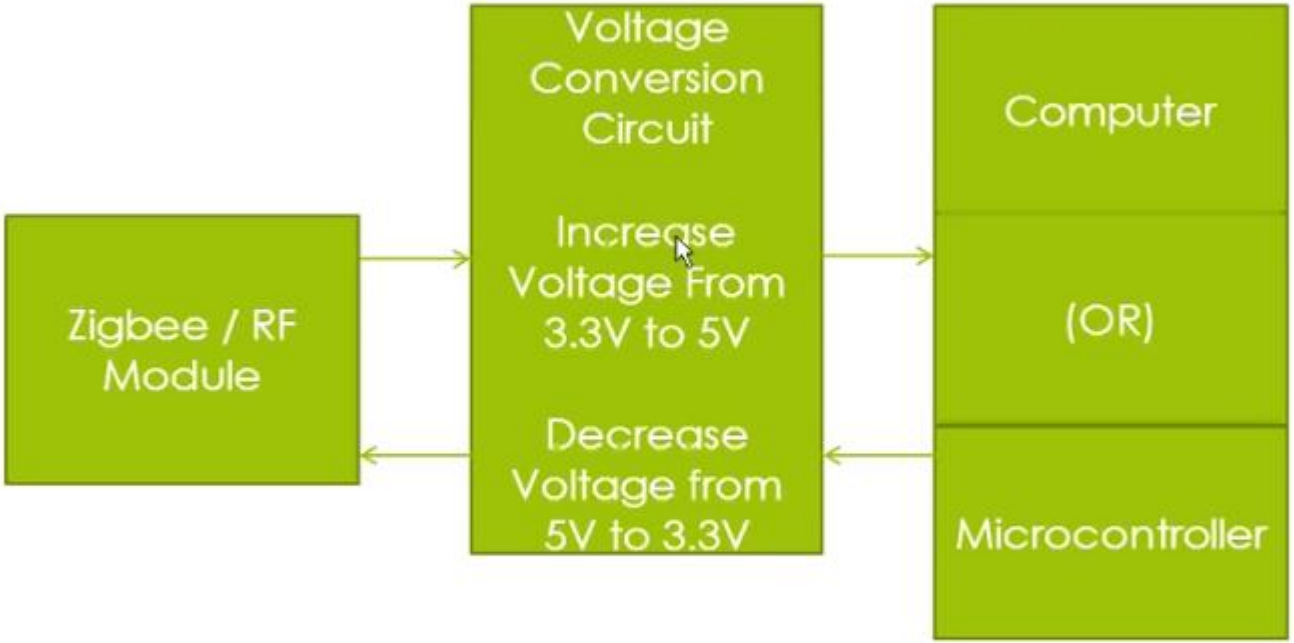
Next >> Connecting to MC

Connecting to Zigbee / RF Modules



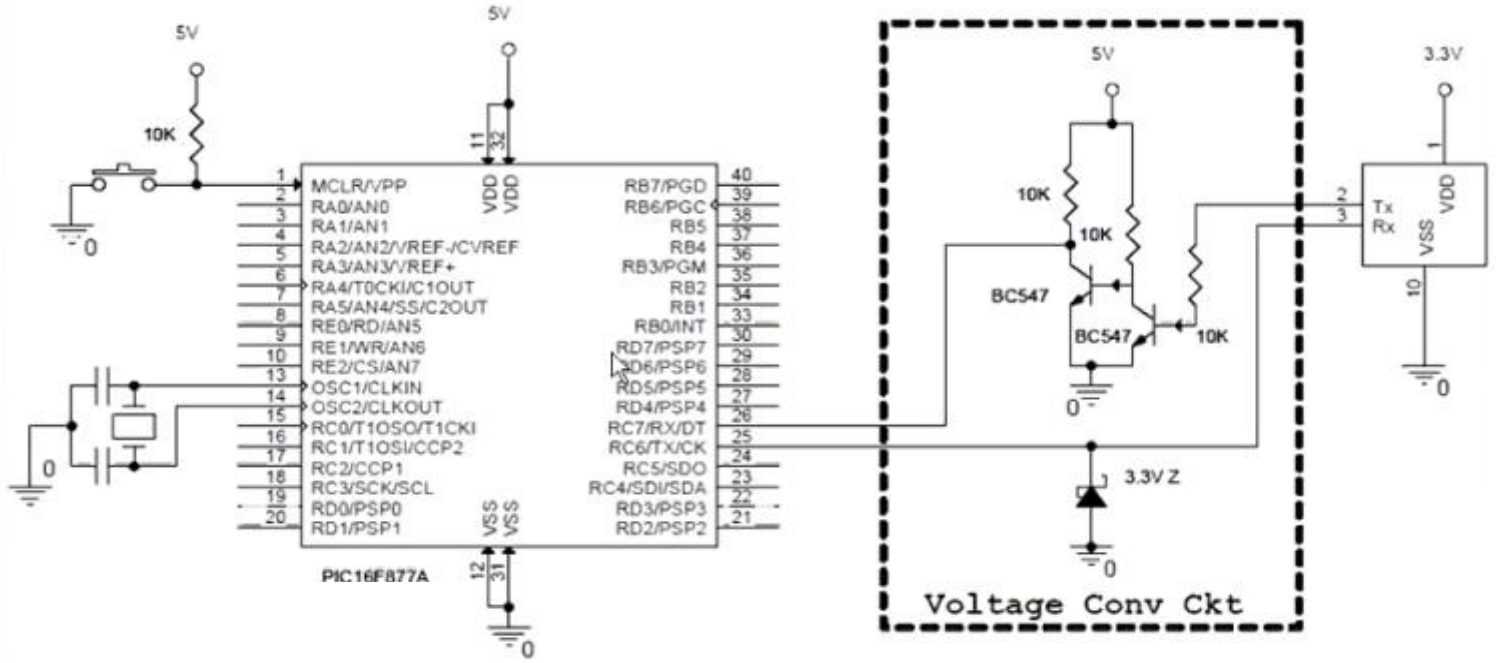
Next >> Voltage Conv Ckt

Voltage Conversion Circuit



Next >> Voltage Conv Ckt

Voltage Conversion Circuit



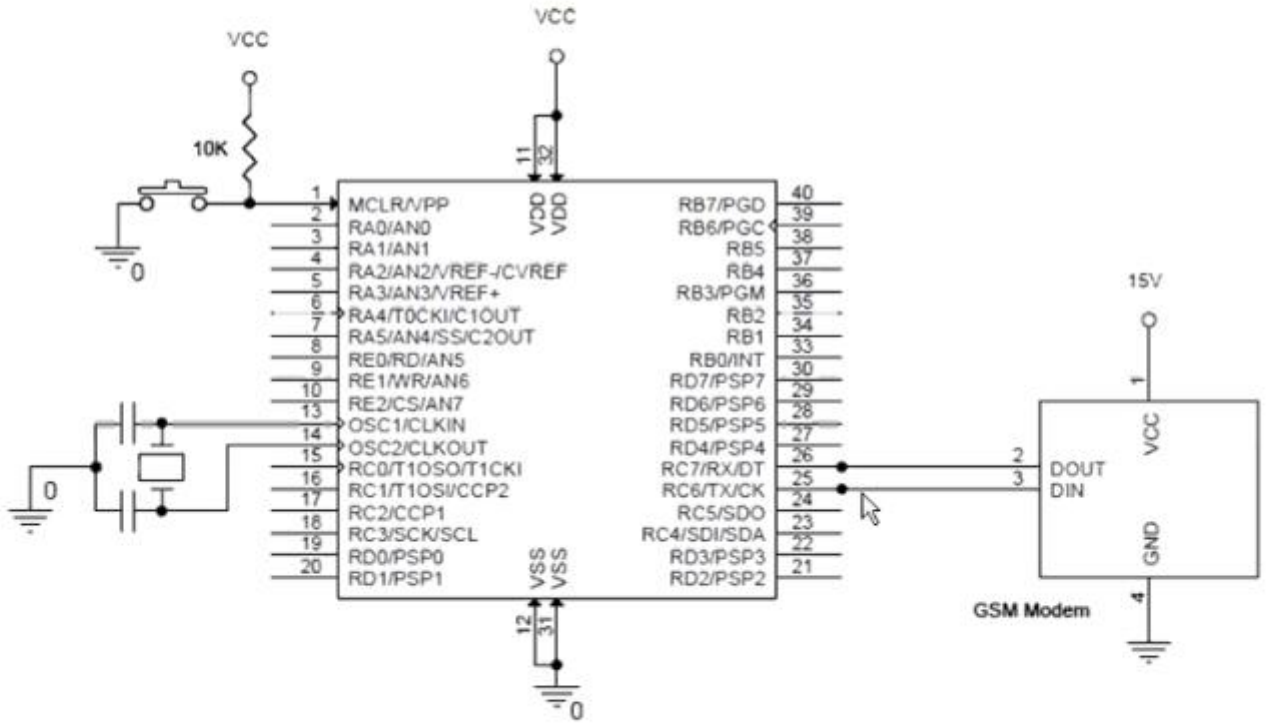
Next >> GSM / GPS / RFID

GSM / GPS / RFID

- GSM : **SIM900**
- RFID : **DT125EMUA**
- GPS : **RASTA-634R**

Next >> Connecting to a MC

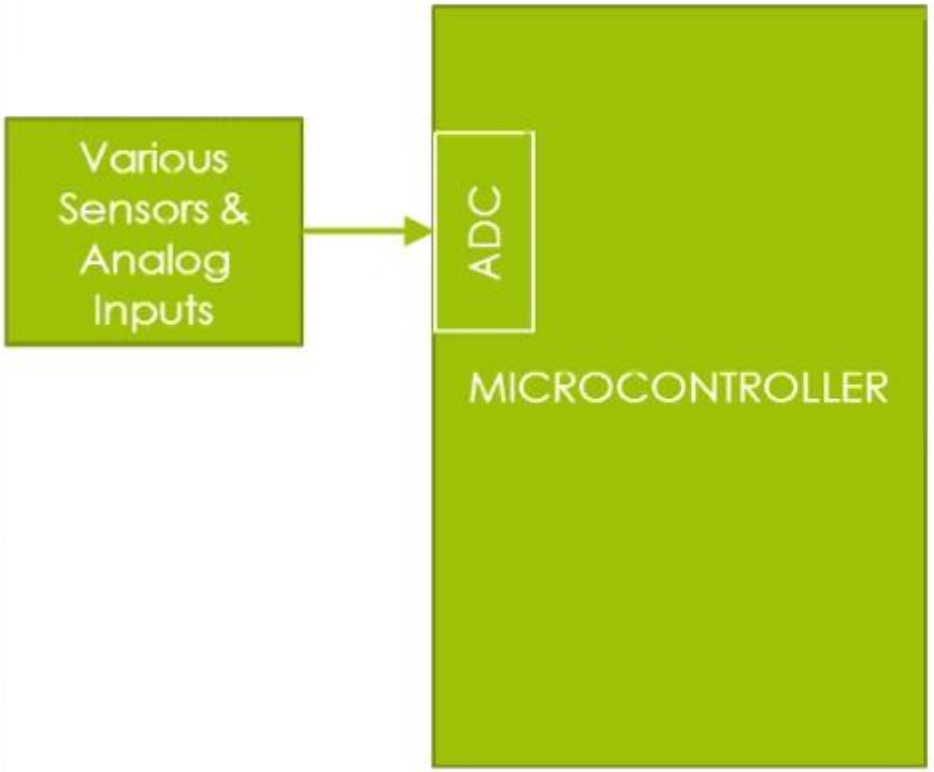
Example Circuit - GSM



Connecting Multiple Devices

- When more than one communication device is to be connected use a multiplexer
- IC 74157 is a multiplexer used for projects.
- Using the multiplexer any combination of communication devices can be connected to the MC
- Example GSM and PC

Sensors and Analog Inputs



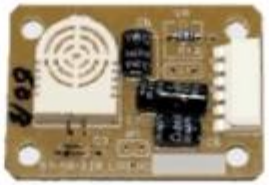
- Temperature
- Pressure
- Humidity
- Level
- IR Distance Sensors
- Gases
- LDR

Next >> Sensor Details

- Temperature – LM35
- Pressure – MPX5010
- Level – MPX5010
- Humidity – SY-HS-220
- Gases – MQ6, MQ7
- IR Distance Sensors – Sharp GP2Y0A21YK0F
- LDR

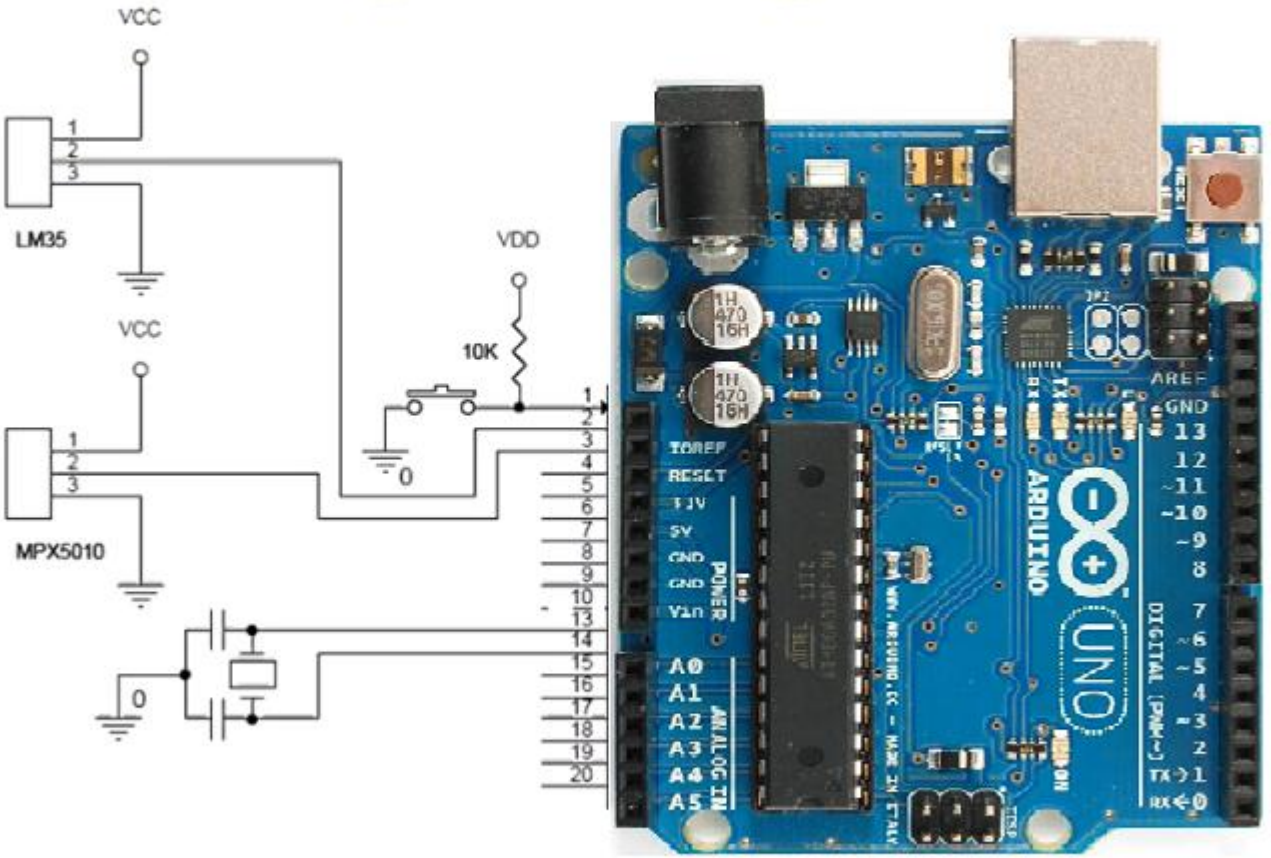
20







Connecting a Analog Sensor



Thank You