PC BASED CONTACTLESS TEMPERATURE MONITORING AND VISITOR COUNTING FOR COVID-19

AIM:

Design and Development of PC based contactless temperature monitoring and visitor counting for covid-19.

PURPOSE:

Convid-19 started in 2019 and not ended completely yet. There are many solutions to minimize spreading of Covid-19. So many medical staff suffered from covid-19. There is no perfect solution to stop covid-19. But we can do minimize spreading of this disease using some techniques like social distancing and crowd management in crowded areas like shopping malls and theaters. Crowd management done by measuring number of people inside premises. Manual based counting is difficult and not accurate also not possible in practical. To solve this kind of issues we have solution like visitor count along with temperature measuring and storing in PC software. Integrating all these technologies together is difficult but not impossible. Here we do this with Arduino microcontroller along with some sensors. Proposed project title is PC based contactless temperature monitoring and visitor counting for covid-19 using Arduino.

DESCRIPTION:

Arduino and USB-TTL cable connected each other through UART communication. Contactless temperature sensor (MLX90614) connected to Arduino I2C port. Two IR sensors connected to Arduino digital pins respectively. 16x2 LCD display connected to Arduino digital pins.

WORKING:

Two IR sensors calculate number of people inside mall. One sensor placed at entry place and count

inside entry visitors, Second IR sensor placed at exit place and count outgoing visitors. By subtracting from entry to exit we will get number of visitors inside mall. This will done by Arduino using internal firmware code. This visitors count information upload to PC and C# application displays on GUI and stores count information in file. Also while visitor entry Arduino measures temperature of visitor using MLX90614. This information also update into C# application. We have count and temperature data in a file along with date and time. This will be used as like local database.

TECHNICAL SPECIFICATIONS:

HARDWARE:

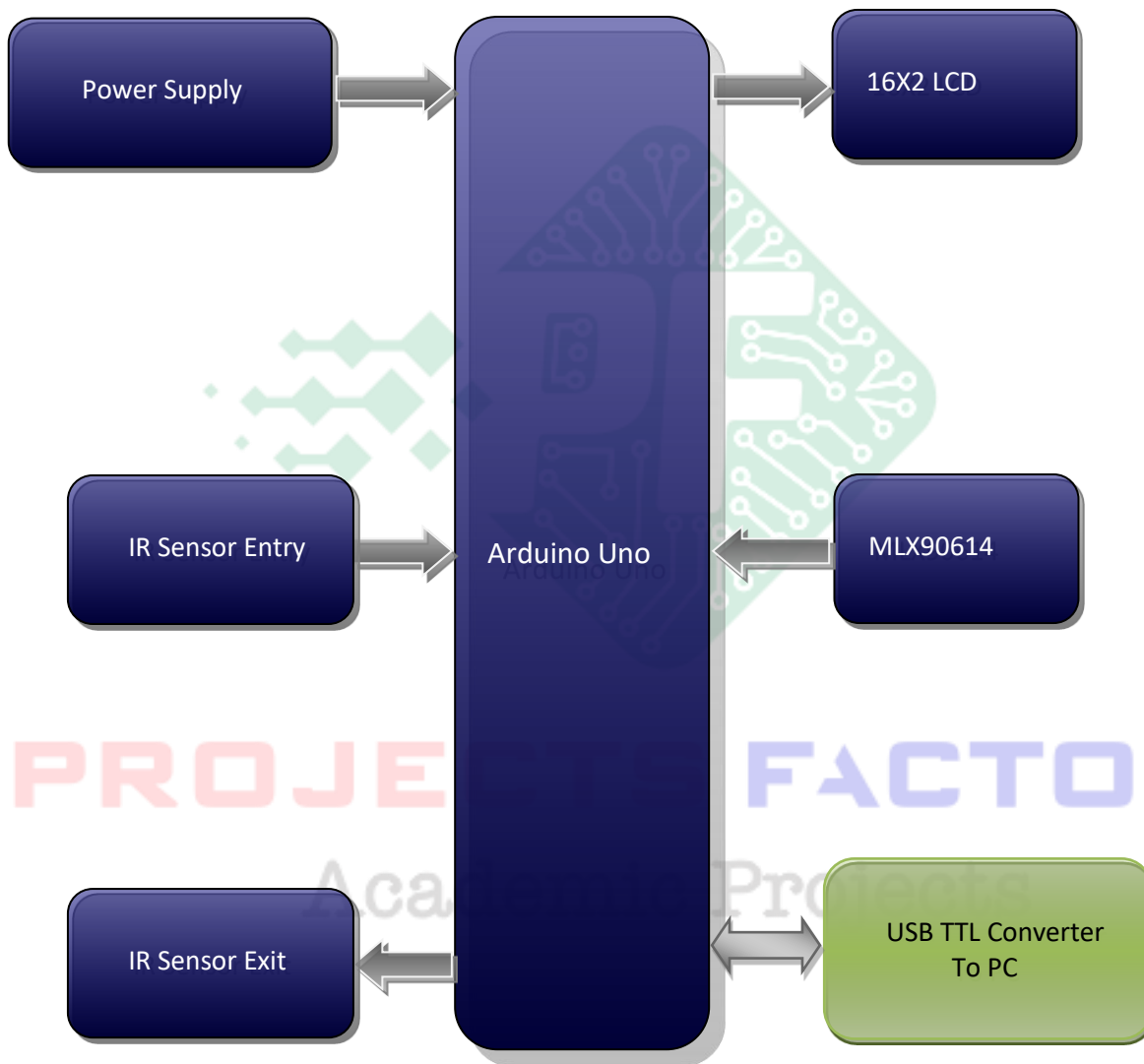|		
Microcontrollers	:	Arduino Uno
Crystal	:	16 MHz
LCD	:	16X2 LCD
Communication Cable	:	USB-TTL
Count Sensors	:	IR sensors
Temp Sensor	:	MLX90614
Power Source	:	12VDC adaptor

SOFTWARE:
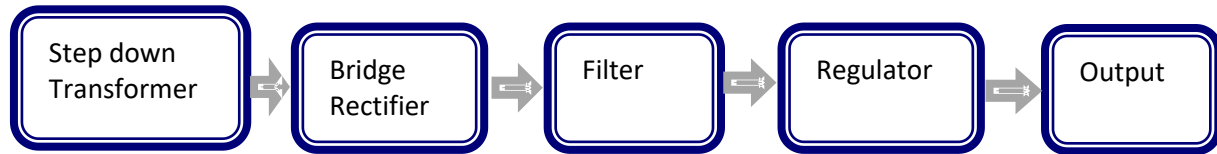
Arduino IDE

Proteus based circuit diagram

APPLICATIONS:

- ➢ Covid-19 crowd management applications
- ➢ Pandemic spreading stop mechanism
- ➢ Crowd Management Applications
- ➢ Power Saving Applications

BLOCK DIAGRAM:

```
Power Supply  ───►  ┌──────────┐  ───►  16X2 LCD
                    │          │
IR Sensor Entry ──► │ Arduino  │  ◄───  MLX90614
                    │   Uno    │
IR Sensor Exit  ◄── │          │  ◄──►  USB TTL Converter
                    └──────────┘        To PC
```

POWER SUPPLY BLOCKDIAGRAM:

| Step down Transformer | → | Bridge Rectifier | → | Filter | → | Regulator | → | Output |

INTERFACES COVERD:

- We have covered Arduino and PC interface
- MLX90614 and IR Sensors interface