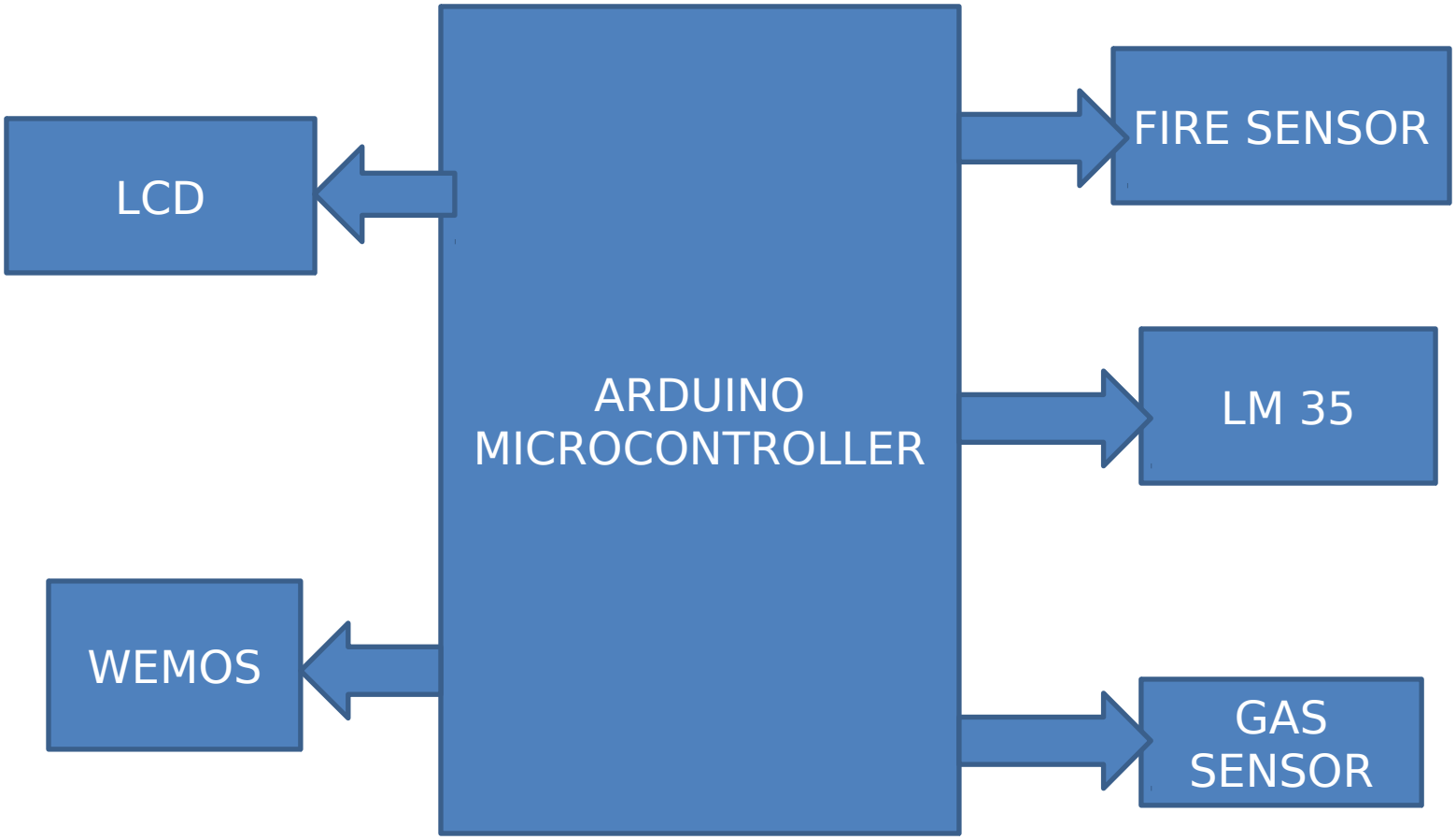
IOT BASED HEALTH MONITORING OF TRANSFORMER

ABSTRACT

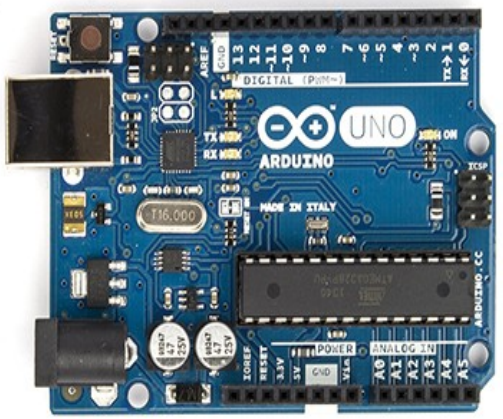
- This work presents design and execution of real time monitoring and fault detection of transformer.
- The parameters like fire, gas, temperature have to look continuously can minimize working efforts and improve accuracy.
- Sensed data is sent to microcontroller and this controller checks parameter limits which further send to the IOT web server.
- If the parameters reach threshold it alerts the control room

BLOCK DIAGRAM



BLOCK DESCRIPTION

ARDUINO UNO



Features

- ATmega328P microcontro
- Input voltage - 7-12V
- 14 Digital I/O Pins (6 PWM outputs)
- 6 Analog Inputs
- 32k Flash Memory
- 16Mhz Clock Speed

TEMPERATURE SENSOR

- LM35 series are precision integrated-circuit temperature sensors.
- Output voltage is linearly proportional to the Celsius temperature.
- Operate over a −55° to +150°C temperature range.
- It can be used with single power supplies

GAS SENSOR

- Detect alcohol concentration on your breath.
- High sensitivity and fast response time.
- Provides analog resistive output based on alcohol concentration.
- A simple interface could be a 0-3.3V ADC

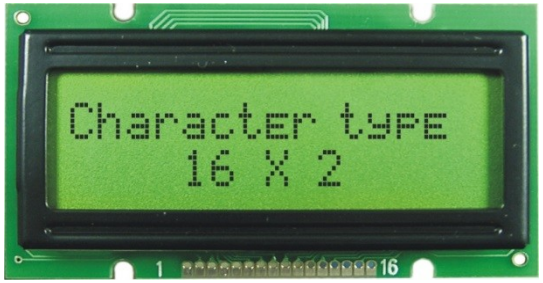
FIRE SENSOR

- Fast response tim
- High photo sensitivity
- Pb free
- This product itself will remain within RoHS compliant version.

BUZZER

- Miniature
- Compact PCB Mount Buzzers in AC and DC type
- Ideal for use with Microcontrollers and Control Systems.
- Low current consumption
- Loud sound output.

LIQUID CRYSTAL DISPLAY



- These modules are preferred over seven segments.
- LCDs consume much less power than LED
- gas-display displays because they work on the principle of blocking light rather than emitting it.
- A 16x2 LCD means it can display 16 characters per line and there are 2 such lines

WEMOS

- **Microcontroller**: ESP8266EX
- **Operating Voltage**: 3.3V
- **Digital I/O Pins**: 11 (all I/O pins have interrupt/pwm/I2C/one-wire capability, except for D0)
- **Analog Input Pins**: 1
- **Flash Memory**: 4MB
- **On-Board Switching Power Supply**:
  - **Input Voltage Range**: 9V to 12V
  - **Output**: 5V at 1A Max
- **Board Dimensions**: 68.6mm x 53.4mm (2.701" x 2.102") / Long x Wide

CONCLUSION

The IOT based monitoring of transformer is quite useful as compared to manual monitoring as it is not possible to monitor always the fire detection, ambient temperature rise ,gas detection manually. After receiving of message of any abnormality we can take action immediately to prevent failures of distribution transformers.

REFRENCES

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- www.engineerprojects.info
- www.arduino.cc
- www.wikipedia.org