Android Based Data Acquisition System with Wireless Communication

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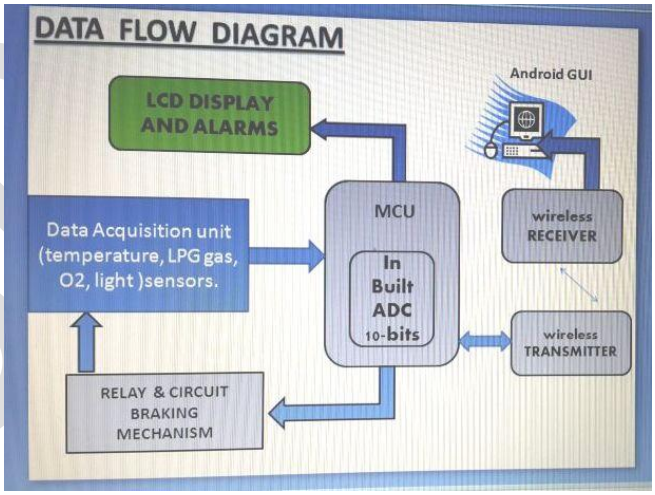
***Abstract*-In this project we implement that we can get data and control with android wireless phone.In data acquisitionsystem we used LM35 for temperature measurement, LPG gas sensor, ultrasonic sensor, LDR, Arduino kit and buzzer. With Bluetooth device user can get data from PC. GUI(graphical user interface)provide easy interface to human in the control station and user will be able to control section using wireless modules at required distance.Data acquisition system measures parameter like light intensity, o2 level, chemical level and temperature measurement of industrial unit.This advanced system is made of MCU. (Microcontroller unit). That can measure and control the range of this parameter for prescribed level.**

I. INTRODUCTION

Android is an operating system based on the Linux kernel, and designed primarily for touchscreen mobile devices such as smartphones and tablet computer. This open-source code and permissive licensing allows the software to be freely modified and distributed by device manufacturers, wireless carriers and enthusiast developers. All industrial processing systems, factories, machinery, test facilities, and vehicles consist of hardware components and computer software whose behavior follow the laws of physics as we understand them. These systems contain thousands of mechanical and electrical phenomena that are continuously changing; they are not steady state. Early systems used paper charts and rolls or magnetic tape to permanently record the signals, but since the advent of computers, particularly personal computers, the amount of data and the speed with which they could be collected increased dramatically. However, many of the classical data-collection systems still exist and are used regularly.

II. BLOCK DIAGRAM



III. COMPONENTS OF ANDROID SYSTEM

A. Arduino uno (atmega328): The arduino uno dual models have 28 pin configuration atmega328chip which have analog and digital function, and also the VCC and GND voltage pins. The analog and digital data also transmitted and received by the TX and RX pin.

B. LM 35 temperature sensor: LM35 is a precision IC temperature sensor with its output proportional to the temperature (in ^{o}C).The sensor circuitry is sealed and therefore it is not subjected to oxidation and other processes

C. LPG gas sensor (MQ6): This is a simple-to-use liquefied petroleum gas (LPG) sensor, suitable for sensing LPG (composed of mostly propane and butane) concentrations in the air. The MQ-6 can detect gas concentrations anywhere from 200 to 10000ppm.

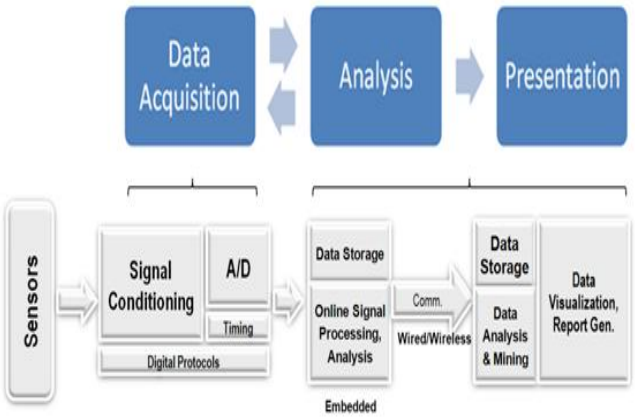
D. Ultrasonic sensor (HCSR04): The HC-SR04 ultrasonic sensor uses sonar to determine distance to an object like bats or dolphins do. It offers excellent non-contact range detection with high accuracy and stable readings in an easy-to-use package.

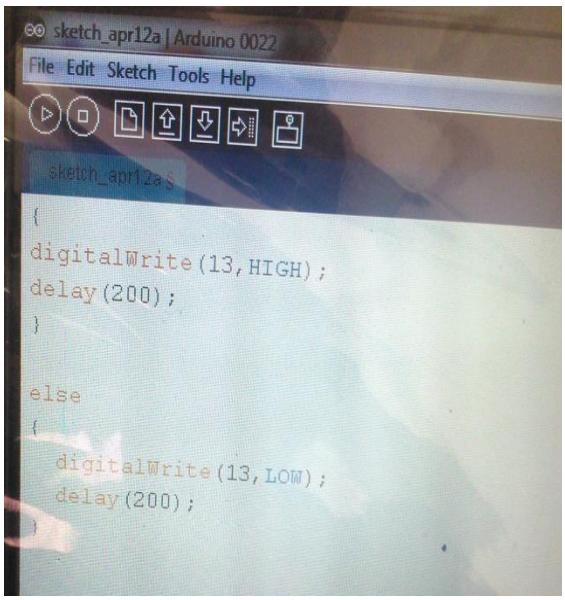
E. Bluetooth: The PIN definitions of HC-03, HC-04, HC-05 and HC-06 are kind of different, but the package size is the same: 28mm * 15mm * 2.35mm.

F. Relay: Relays are switches that open and close circuits electromechanically or electronically. Relays control one electrical circuit by opening and closing contacts in another circuit.

Temperature Value As Shown Above

IV. DESIGN OF ALGORITHM





V. ANALYSIS

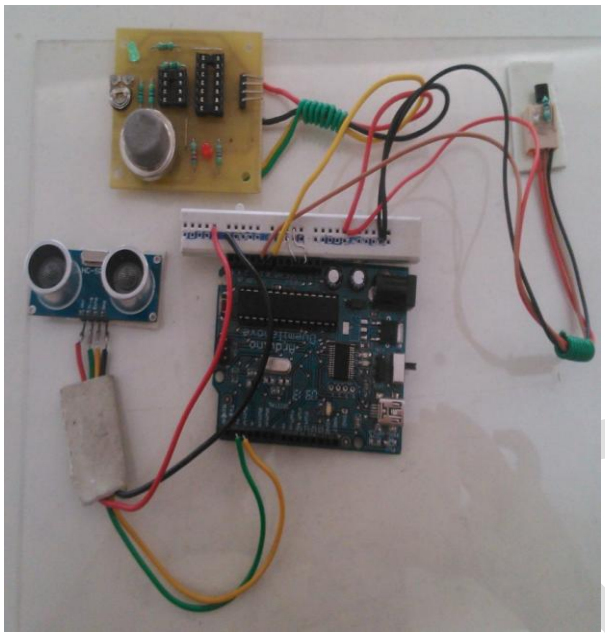
The software part of this project is shown as fig. the Arduino software and programming is shown as interfacing with all sensors and gets output range by programming.

VI. APPLICATION

- Medical application
- Automobile application
- Industrial
- Security services

VII. CONCLUSION

As we can conclude that the project may be useful for industrial control and measuring and control the parameter by the hardware sensors and software programming.



VIII. LITERATURE REVIEW

Smartphone applications are developed and run on handled devices such as smartphones and perform specific tasks for users. These applications are installed on the device by manufactures or downloaded by users from global smartphone application markets. In last few years, mobile application markets have grown rapidly and more smartphone application developers have stepped into this new market.

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