

**A NOVEL STUDY TOWARDS DATA ACQUISITION FOR
SUPERCONDUCTING QUANTUM DEVICES AT REMOTE LOCATION****M Vani Chandrika¹, Aswani lalitha², D.Naga Ravi Kiran³**¹M.Tech Student, Dept of ECE, Chalapathi Institute of Technology, Guntur, A.P, India²Associate Professor, Dept of ECE, Chalapathi Institute of Technology, Guntur, A.P, India³Associate Professor & HOD, Dept of ECE, Chalapathi Institute of Technology, Guntur, A.P, India**ABSTRACT:**

The design Data Acquisition for superconducting quantum interface devices (squid) at remote location by posting data to the Mobile Communication by GPRS Module. Sensors are used to detect the variations in the parameters and send messages to analog to digital converter and the converted message is send to micro controller, micro controller will compare input information with the max input written in the program and if any parameters crosses the limit it will send a to registered mobile through gsm module. Through registered mobile we control the devices by sending message to gsm module, by using serial communication, micro controller will execute the message and corresponding operation is done. We introduce data acquisition system that send output of superconducting quantum interface devices by means of wireless by general packet radio service is intended to be offered. The proposed system design will make use of field-programmable gate array and microcontroller within process of gathering, packing as well as sending of data. Microcontroller will forward data all the way through general packet radio service at low cost, the way we control and manage their functions would change entirely.

Keywords: Superconducting Quantum Interference, Microcontroller, GSM/GPRS Module, LPC2148 development board, Amplifiers.

1. INTRODUCTION:

Remote control via the Internet is not a new feature and used in home automation systems. However, providing a mechanism for interaction between devices in this environment is quite challenging. The Mobile Communication has been mostly used to connect personal computers so far, but shortly all kinds of appliances with embedded computers will exchange information over the Internet. A massive number of microcontrollers are available in today's devices which can be linked to the Mobile Communication. If these intelligent appliances could be connected to the Mobile Communication

2. METHODOLOGY:

By the technological developments that are associated to particular area, extent of remote data acquisition systems has turn out to be extended. Usage of this system will put off waste of time hence in our work, introduction of data acquisition system that send output of superconducting quantum interface devices to major lab by means of wireless by general packet radio service is intended to be offered. The system design will make use of field-programmable gate array and microcontroller within process of

gathering, packing as well as sending of data. Most important purpose of microcontroller is to forward data all the way through general packet radio service. Rationale of field-programmable gate array is collection of analog data by usage of ADC and packing them consecutively. Processing load of microcontroller is decreased by means of Flexible static memory controller of it whereas getting data from field-programmable gate array; also by parallel connection data transfer rate is improved. In order to integrate this interface with a home automation system, a development board with an embedded microcontroller was used. The interconnection between the android and the automation system was made using a GSM/GPRS Module connection. By using this GSM/GPRS Module we are going to the post data by message and by sending message we are going to control the Superconducting Quantum Interface Devices. Power input connector from the power conversion module sub-components making the necessary transformation of voltage It is feeding section. The lower section components in power conversion Introduction to the voltage from the power supply 1.2 VDC, 3.3 it makes the VDC and

4.0 VDC conversions. 8-40 VDC power supply voltage range that could provide at least 3 flow it may be any source. This power conversion section eliminating the dependence on a single power supply with the facility removed. With wide voltage range on the market desired with simple battery that can be found in a long time used. For example, 12 VDC / 1 day 60 car batteries more data can be collected without interruption. Most power GSM if the data module by decreasing the frequency of thought to spend this period can be increased.

Design of Proposed Hardware System

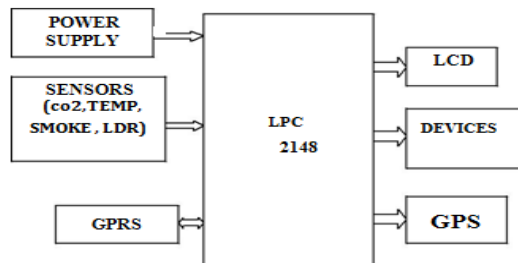


Fig.2.Block diagram

Micro controller: This section forms the control unit of the whole project. This section basically consists of a Microcontroller with its associated circuitry like Crystal with capacitors, Reset circuitry, Pull up resistors (if needed) and so on. The Microcontroller forms the heart of the project because it controls the devices

being interfaced and communicates with the devices according to the program being written.

ARM7TDMI: ARM is the abbreviation of Advanced RISC Machines, it is the name of a class of processors, and is the name of a kind technology too. The RISC instruction set, and related decode mechanism are much simpler than those of Complex Instruction Set Computer (CISC) designs.

Liquid-crystal display (LCD) is a flat panel display, electronic visual display that uses the light modulation properties of liquid crystals. Liquid crystals do not emit light directly. LCDs are available to display arbitrary images or fixed images which can be displayed or hidden, such as preset words, digits, and 7-segment displays as in a digital clock. They use the same basic technology, except that arbitrary images are made up of a large number of small pixels, while other displays have larger elements.

Thermistor: Thermistors are a temperature sensing devise. It is used to sense the temperature. In this project by depends on the value of temperature the exhaust fan will run.

GPS: Global Positioning System tracking is a method of working out exactly where something is. A GPS tracking system, for example, may be placed in a vehicle, on a cell phone, or on special GPS devices, which can either be a fixed or portable unit. GPS works by providing information on exact location. It can also track the movement of a vehicle or person.

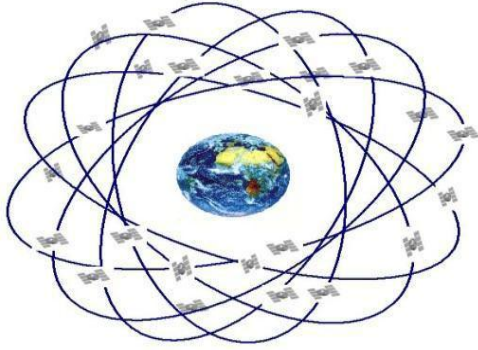


Fig: GPS Location Tracking

A GPS tracking system can work in various ways. From a commercial perspective, GPS devices are generally used to record the position of vehicles as they make their journeys. Some systems will store the data within the GPS tracking system itself (known as passive tracking) and some send the information to a centralized database or system via a modem within the GPS system unit on a regular basis (known as active tracking) or 2-Way GPS.

LDR: LDRs or Light Dependent Resistors are very useful especially in light/dark sensor circuits. Normally the resistance of an LDR is very high, sometimes as high as 1000 000 ohms, but when they are illuminated with light resistance drops dramatically. However, when light shines onto the LDR its resistance falls and current flows into the base of the first transistor and then the second transistor. The LED lights on. The preset resistor can be turned up or down to increase or decrease resistance, in this way it can make the circuit more or less sensitive.

HUMIDITY SENSOR: Humidity is the amount of water vapor in the air. In daily language the term "humidity" is normally taken to

mean relative humidity. Relative humidity is defined as the ratio of the partial pressure of water vapor in a parcel of air to the saturated vapor pressure of water vapor at a prescribed temperature. Humidity may also be expressed as absolute humidity and specific humidity. Relative humidity is an important metric used in forecasting weather. Humidity indicates the likelihood of precipitation, dew, or fog. High humidity makes people feel hotter outside in the summer because it reduces the effectiveness of sweating to cool the body by preventing the evaporation of perspiration from the skin. Absolute humidity is the quantity of water in a particular volume of air. The most common units are grams per cubic meter, although any mass unit and any volume unit could be used. Relative humidity is defined as the ratio of the partial pressure of water vapor in a gaseous mixture of air and water vapor to the saturated vapor pressure of water at a given temperature. Relative humidity is expressed as a percentage. Specific humidity is the ratio of water vapor to air (including water vapor and dry air) in a particular volume. Measuring and regulating humidity.

SMOKE SENSOR: Smoke sensor is used to detect any leakage of smoke and any

hazardous gases such that an alarm can be initiated to avoid any damages in the industries. These sensors are also used in many applications like corporate and in any office work areas these are linked to fire alarms .And buzzers through the micro-controller. There are two main types of smoke detectors: Ionization detectors and photoelectric detectors. A smoke alarm uses one or both methods, sometimes plus a heat detector, to warn of a fire. Ionization detectors have an ionization chamber and a source of ionizing radiation. The source of ionizing radiation is a minute quantity of americium-241 (perhaps 1/5000th of a gram), which is a source of alpha particles (helium nuclei). The ionization chamber consists of two plates separated by about a centimeter. The battery applies a voltage to the plates, charging one plate positive and the other plate negative. Alpha particles constantly released by the americium knock electrons off of the atoms in the air, ionizing the oxygen and nitrogen atoms in the chamber.



DEVICES:

There are two devices ,device1 and device 2,controlled by the Mobile Communications, these Mobile Communications are communicated to the controller using AT Commands , parallelly we create web switches in Mobile Communication , using sending messages we will control the devices when the sensor are reached the threshold values.

3. CONCLUSION:

The developed system can be used for home and industry controller prototypes. It is very economical and prevents the wastage of time and labor as well. The aim to automate the industry and home has been achieved and results are obtained.

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