**ABSTRACT**

The use robotics is increasing day by day to replace the manpower for many reasons and uses with high navigational intelligence.

The aim of the development of modern robot control systems at the Institute of Robotics Research is to provide higher flexibility and autonomy for robot systems, together with consistent and user-transparent concepts for installation, programming and operation of robots in their working environment. An important feature of a flexible future-oriented robot controller is the capability to incorporate information from different classes of sensors and to have standardized communication interfaces with other factory-automation components.

In recent years there is a vast technology improvement in industrial control rooms for monitoring the entire field of Industrial plants. High end PLC’s are being implemented for controlling the entire process of fields. But a problem is that even though automation takes the complete control of total plants few authentication and manual actions are needed from user side for completing the control action. Hence there is a must situation for users presence at all times in the control room for taking some timely needed control actions. Due to the static nature of control room environment, the user should always be static to monitor the process. The proposed system approach provides a good solution to this problem. The whole control room environment is additionally implemented in the microcontroller platform and the same is communicated to the process through GSM and ZigBee. Now the user in control room can be mobile at anytime, anywhere to monitor and control the whole plant. At the same time the control parameters can be send to the desktop computer. A microcontroller board is used here for acquiring process control parameters from the sensors and transmitting it via a GSM module to an android device. Hence the parameter values can be monitored and stored simultaneously. The main objective of this proposed work is to acquire the level sensor values with the help of microcontroller device and transmit the signals via GSM device interfaced with controller and thereby monitoring and storing the process variable parameters in a microcontroller platform. We can monitor the industrial parameters such as gas, liquid level, human detection, fire. If fire detected buzzer will on and a cooling fan switched on. If gas leaked buzzer will on. If liquid overflows buzzer will on. For security purpose human detection sensor can be used. If any obstacle find the robot will change the direction by using IR sensor. All the parameters are send via GSM and ZigBee.

This project uses regulated 5V, 500mA power supply. 7805 three terminal voltage regulator is used for voltage regulation. Bridge type full wave rectifier is used to rectify the ac output of secondary of 230/12V step down transformer.

**Technical Specifications:**

Project Title : WSN based Mobile and PC Control Room Environment for Industrial

Applications.

Domain : Embedded System/ Robotics.

MCU : LPC 2148 Microcontroller.

Hardware : LCD Display, GSM Module, Fire Sensor, GAS Sensor, Level Sensor, PIR

Sensor, IR Sensor, ULN2003 Relay Driver, Cooling Fan, ZigBee module,

PC, L293D Motor Driver, DC Motors, Buzzer.

Software Used : Keiluv4 IDE Tool, Proteus\_v7.8i, HyperTerminal, uc Flash USB .

Coding : Embedded C Programming.

Power Supply : 5V, 500mA Regulated Power Supply.

Advantages : Highly sensitive, Low cost, Reliable for long period of time, Power utilization

is less, Secured and Safety, Real time usage .

Applications : In shopping complex, hospitals for security and industrial appliances

automation.

**Block Diagram**:

TRANSMITTER:



RECEIVER:

