**AUTONOMOUS ROBOT FOR REFINERY INSPECTION**

**AIM:**

To implement a robotic system to autonomously navigate in an oil and gas refinery and it must be able to communicate with the control room and also localize it and alert workers in hazardous leakages and other accidents.

**PURPOSE:**

Industrial safety is one of the main aspects of industry specially refining industry. To avoid any types of unwanted phenomena all refining industry follows some basic precaution and phenomena. Communication is the main key factor for any industry today to monitor different parameters and take necessary actions accordingly to avoid any types of hazards.

**OIL AND GAS REFINERY** **SECTION:**

**POWER SUPPLY**

**MICRO CONTROLLER**

**(AT89S52)**

**LCD DISPLAY**

**(16\*2 LINES)**

**TEMPERATURE SENSOR**

**BLUETOOTH MODULE**

**BUZZER**

**HUMIDITY SENSOR**

**GAS SENSOR**

**MOTOR DRIVER**

**MOTOR**

**DESCRIPTION:**

The proposed system is divided into two sections. A mobile robotic platform is a rational analog to a physical human - it can move through an environment either autonomously or through tele-operation while sensing its surroundings with an array of sensors. A microcontroller is used with the sensors to receive the sensor outputs and to take the necessary decision. Once temperature is more than the safety level preprogrammed at microcontroller, microcontroller decodes beep alarms through controller once the measured humidity value is more than the safety level preprogrammed at microcontroller; it decodes different type of beep alarms. Similarly when gas concentration crosses the safety level, microcontroller decodes siren alarms. Different sensors values are displayed in the LCD of refine workers section. In control station the information is received by BLUETOOTH and the status of the sensors is monitored in the laptops and required action is performed by sending signals to Microcontroller.

**HARDWARE REQUIRED:**

* Microcontroller (AT89S52)
* BLUETOOTH module
* Temperature sensor
* Humidity sensor
* Gas sensor
* Motor
* LCD DISPLAY

**SOFTWARE REQUIRED:**

* Keil µ vision4
* Embedded C
* Express PCB

**RESULT:**

Robotic system to continuously navigate in an oil and gas refinery and it must be able to communicate with the control room and also localize itself through BLUETOOTH.