Introduction-Wireless Local Area Sensor Network Protocol for Rescue Calling

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Abstract— **The residential and industrial accidents frequently occurred on each day worldwide. As per the survey, millions of people lost their lives because they did not intimated by any way. Hence to make personal as well as professional life & property make more secure & safe, I have designed WLASN protocol follower "Rescue caller & data Analyzer" system.**

Keyword: WLASN(Wireless Local Area Sensor Network)

I. INTRODUCTION

The Residential & Industrial accidents frequently occurred

Worldwide on n each day without warning at each time, in which many lives and property suffered.

As per survey, millions of people losses their lives because they did not intimated by any way.

Hence to make personal & professional life & property more secure & safe, I have designed WLASN protocol based "Rescue Caller & Data Analyzer" system.

The reason behind to developing this system is to alert people who are in accident-Prone area at real time or initial stage of accident.

This system has ability to detect-:

- Vibration (Earthquake, Slab-Heavy machinery collapse)
- Fire OR Smoke
- Hazardous GAS leakage- LPG, Chlorine
- Un-Authorized Entry
- Woman security
- Senior citizen medical caller
- And many more……as per requirement

Whenever any industry or Residential area has been suffered from any disaster accident, it did not affect only that industry, but also the people who are working in the company & also those who resides nearly that company.

This system is developed to alert Rescue services like, POLICE, AMBULANCE & FIRE-BRIGADE also to all people near about accident-prone area.

II. LITERATURE SURVEY

The concepts of emergency services are born only to providing help with medical & antiaccident kit.

Emergency services are also called as Rescue services which are built from specific operational team which gives assurance of public safety & health protection also provides quick help at accident prone area.

The most widely and basic public rescue services are POLICE, FIRE-BRIGADE, AMBULANCE in civil and industrial areas.

Now a days most of the systems already developed to call rescue services, but not able to auto detect the accident. For their proper operation, these systems needs human interface near about 0% to 70%, to manually call the rescue team.

But in absence of human being, at the accident prone zone, there may be heavy living and property loss occurred.

The most popular accidents are,

- Bhopal GAS tragedy
- Mumbai Chlorine GAS tragedy

In above areas, there were no systems available to indicate the leakage of poisonous gas. For this reason, hundreds of people died & millions of heavily injured.

To prevent such accidents, the need rises for Automatic Rescue Calling Systems

III. SYSTEM OVERVIEW

The block diagram of "**Rescue Caller System**" consists of two main parts.

   i.   HARDWARE

      a. Transmitter
      b. Receiver

  ii.   SOFTWARE

      a.   DATA BASE MANAGEMENT SYSTEM

1. Hardware**-:**

Transmitter**-:**
1. The core part of the transmitter is Microcontroller. Across Master node various sensors such as Fire, Gas and Earthquake are connected.
2. Power supply for the complete circuit is 5V DC with backup facility.
3. LED and BUZZER are driven by means of Microcontroller.
4. The data which is processed by Microcontroller is encoded by RF Encoder.

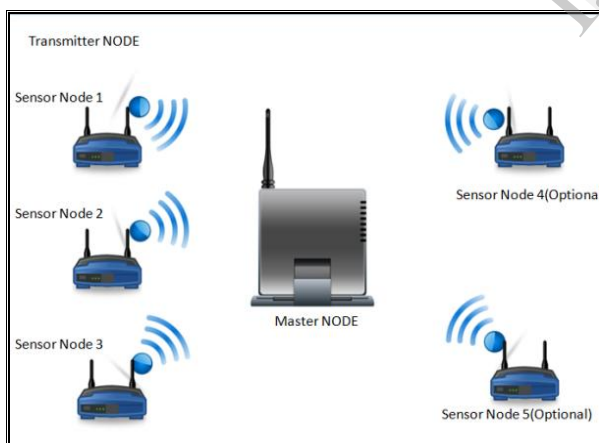The encoded signal is transmitted by means of RF Transmitter.

Fig. 1 System Structure of Rescue Service Caller

Receiver-:
1. The 5V DC power supply is required for entire circuit.
2. The transmitted data is received by RF receiver and decoded by means of RF decoder.
3. This decoded data acts as a input to Microcontroller.

4. The output data is displayed on 16 X 2 LCD Display. And buzzer is also activated by Microcontroller.

Fig. 2 Receiver System at Rescue Service Control Room

2.   SOFTWARE

a. DATA BASE MANAGEMENT SYSTEM

- International database is only used for international Accident and rescue operation analysis.
- This is used for Insurance claim, Analysis of Yearly, accident type wise, Country wise, and location wise rescue details for further information and study.

IV. IMPLEMENTATION DETAILS

The hardware installation and operational structure is as follows-:

1. *There will be ONE master and Multiple slave.*
2. *Hardware for the master and slave unit will be designed and developed in the project.*
3. *Parameters scanned will be*
   1)   Fire
   2)   Hazardous Gas Leakage
   3)   Earthquake/ Heavy Machinery/ Building Collapse
   4)   Unauthorized Entry
   5)   Manual Rescue Calling

Software part will be developed. It will contain,
1. *Consumer Registration Form*
2. *Allotment of Systems with unique Identification No.*
3. *Checking Consumer ID with Problem and Update to Consumer A/C*

V. CHARACTERISTICS

The highlighted characteristics of "Rescue Caller & Data Analyzer" are-:

1. Unique Global Customer Identification Number

2. Extremely low power consumption
3. Less communication failure
4. Ability to work in bad weather condition
5. Easy to handle
6. Easy to install
7. 0% maintenance
8. Sensor Node mobility
9. Cost effective
10. Follows WLASN protocol follower
11. Hazard Free
12. Fire proof body(metallic)

VI. APPLICATION

1. Weather monitoring systems- Humidity, temperature, etc
2. Patient monitoring systems- ECG, Blood pressure, Body Temperature, etc
3. Water reservoir- % of impurity, % of Bacteria, Temperature, Fish location
4. Traffic Services- Traffic location, Black Box, Inter Vehicle communication, Location/direction find out
5. Live chatting- Inter system/Processor communication

VII. FUTURE SCOPE

1. Future systems may consists GPS systems for moving property
2. RTOS may be implemented
3. Global frequency band may be allotted for communication
4. Remote operation & installation
5. Global Data analysis

VIII. REFERENCE

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