E- Safety Provider

V. Kowshika[1], K. Akila[2], S. Nagaraj[3], S. Surendar[4], S. Kalpanadevi[5]
Student[1, 2, 3, 4], Associate Professor[5]
Department of Electrical and Electronics Engineering
Knowledge Institute of Technology, Salem, India

Abstract:
In present days, most of the people are frequently migrating from one place to another for their survival. During the period of migration, everyone has to take-care of their safety in all the aspects. But, in case of emergency situation, it is somewhat difficult to inform others about their current location and to overcome that we had introduced a novel and compact device which identifies the current location of the people who are in emergency condition just by means of pressing the push buttons. There are three push buttons proposed here to seek the help services from Fire, Hospital and Police Station using IoT. And also provision is given to senses the presence of gas leakages so that it automatically switch off the main supply and also gives an alert message to the respective person using GPS as an notification to avoid dangerous situation. This novel way of providing safety to ourselves would make an impact in the society by which people may be getting benefitted without any help from the neighbours.

Keywords: Push buttons, GPS, IoT.

1. INTRODUCTION:

In modern days all of us are busy with our individual works. We are going to work from morning to evening as well as in shift basis. During that time children and senior citizen will stay alone in the house. In case of any unavoidable situations like fire accidents, health problems and theft they cannot able to call support. Sometimes they may be unaware of handling the situations and sometime it will not strike the mind of the person to seek for help. In this case, safety of the individual present in the home should be ensured. The Web of things has turned into a key innovation in wellbeing building and even turned into a noteworthy part in our advanced life these days. Hence, it has turned out to be a standout amongst the most essential innovations utilized in the advancement of data organize for the security framework. In this proposed venture, IoT innovation has been utilized to save framework amid the crisis conditions. Accordingly, the proposed thought expects to give the wellbeing by sharing the data to the different administrations, for example, fire administration, emergency clinic, and police headquarter using IoT as a major technology. In the aspects of safety, detection of LPG leakage is also crusial one in all homes to avoid hazardours situation. In India the supply of LPG through pipelines is crazy on account of insufficiency of LPG usage. Our system further more wants to help customers with overhauling their security standards to keep from setbacks and guarantee life and property. In the occasion that gas acknowledgment sensor MQ-3 perceives a couple of gas spillage, and then senses the leakage of gas resulting in turning off power supply.

2. LITERATURE SURVEY

Fanwu, Jean Michel redoute, Mehmet rasit yuce proposed wearable Web of Things (IoT) sensor for checking hurtful ecological conditions for security applications by means of a Lora remote system. The proposed sensor hub, called WE-Safe hub, depends on a redid sensor hub, which is self-fueled, low-power, and backings different natural sensors. Natural information is observed by the sensor hub progressively and transmitted to a remote cloud server. The information can be shown to clients through an electronic application situated on the cloud server and the gadget will caution the client by means of a versatile application when a crisis condition is identified. The trial results demonstrate that the exhibited wellbeing checking system works dependably utilizing vitality reaping. Akash Moodbidri and Hamid Shahnasser proposed Youngster Security Wearable Gadget. This paper talks about the idea of a shrewd wearable gadget for little youngsters. The real preferred standpoint of this wearable over other wearable is that it tends to be utilized in any cellphone and doesn't really require a costly cell phone and not a very educated individual to work. The reason for this gadget is to help guardians find their kids effortlessly. The focal point of this paper is to have a SMS content empowered correspondence medium between the youngster's wearable and the parent as nature for GSM portable correspondence is practically present all over the place. The parent can send a content with explicit catchphrases, for example, "Area" "Gum based paint TURE" "UV" "SOS" "BUZZ", and so on., the wearable gadget will answer back with a content containing the ongoing exact area of the youngster which after tapping will give bearings to the tyke's area on google maps application and will likewise give the encompassing temperature, UV radiation is not suitable for the child. Vinayak V. Mane, Shreyas S.Madhekar, Anand S.Kulkarni, Prof. Vishal Katekar proposed Gas Spillage Identification with Programmed Booking and Valve Sidestep.In this framework, the LPG spillage is recognized through the sensor and data is sent to the client by short message administration (SMS) and at the same time alarms the client utilizing GSM module. On the off chance that these gasses surpass ordinary dimension, at that point alert is produced right away. In this framework MQ-6 gas sensor used to detect harmful gas and has high affectability to LPG and furthermore reaction to gaseous petrol. This work adjusts the current wellbeing model introduced in enterprises. It offers snappy reaction time and precise location. The extra preferred standpoint of the framework is that it persistently screens the dimension of the LPG present in the barrel utilizing weight sensor (load cell). E. Jebamalar Leavline, D. Asir Antony Gnana Singh, B. Abinaya, H. Deepika proposed LPG Gas Spillage Identification and Ready Framework . Home flames

have been occurring much of the time and the danger to human lives and properties is developing lately. Fluid oil gas (LPG) is very inflammable and can consume even at some separation from the wellspring of spillage. Most flame mishaps are caused in view of a low quality elastic cylinder or the controller isn't killed when not being used. In this manner, building up the gas spillage ready framework is extremely fundamental. Subsequently, this paper introduces a gas spillage ready framework to distinguish the gas spillage and to caution the general population locally available

3.BLOCK DIAGRAM

Fig 3 shows the block diagram of the proposed system. It consist of transformer, bridge rectifier, Arduino, gas sensor, wi-fi module, IoT, GPS, LED, relay, push buttons.
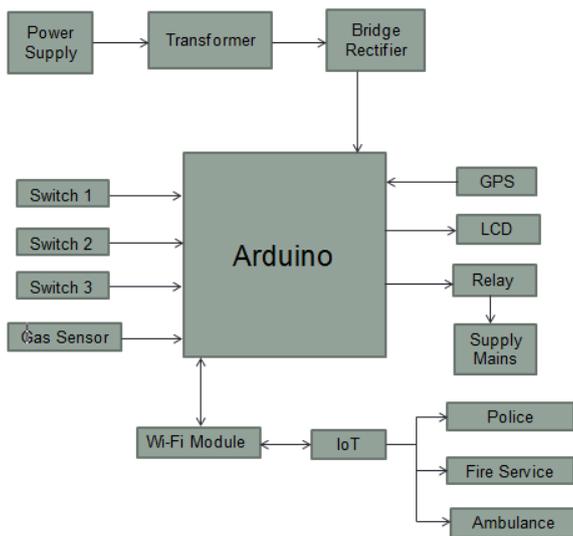
Figure.3. Block diagram of the proposed system

4. HARDWARE COMPONENTS

4.1 Arduino UNO
Fig 4.1 shows Arduino which is a solitary board microcontroller to make utilizing hardware in multidisciplinary extends increasingly open. The equipment comprises of an open-source equipment board planned around a 8-bit Atmel AVR microcontroller, or a 32-bit Atmel ARM. The product comprises of a standard programming language compiler and a boot loader that executes on the microcontroller. The Arduino Uno can be fueled by means of the USB association or with an outside power supply. The power source is chosen consequently. Outer (non USB) power can come either from an air conditioner to-DC connector (divider - mole) or battery. The connector can be associated by stopping a 2.1mm focus - positive fitting into the board's capacity jack. Leads from a battery can be embedded in the Gnd and Vin stick headers of the POWER connector. The board can deal with an outside supply of 6 to 20 volts. Whenever provided with under 7V, be that as it may, the 5V stick may supply under five volts and the board might be insecure. In case using more than 12V, the voltage controller may overheat and hurt the board. The prescribed range is 7 to 12 volts. The ATmega328 has 32 KB (with 0.5 KB utilized for the boot loader). It in like manner has 2 KB of SRAM and 1 KB of EEPROM. Every one of the 14 advanced sticks on the Uno can be utilized as an info or yield, utilizing pin Mode(), computerized Compose(), and computerized Read() capacities.

Figure.4.1. Arduino UNO

4.2. LCD (Liquid Crystal Display)
Fig 4.2 shows a Fluid Precious stone Presentation ordinarily truncated as LCD is essentially a showcase unit assembled utilizing Fluid gem innovation. When we assemble reality hardware based undertakings, we need a medium gadget to show yield esteems and messages. The most essential type of electronic 7 fragment presentation which has its very own impediments. The following best accessible choice is Fluid Precious stone Presentation which comes in various size particulars. Out of all accessible LCD modules in market, the most usually utilized one is 16×2 LCD Module which can show 32 ASCII characters in 2 lines (16 characters in 1 line). Other ordinarily utilized LCD shows are 20×4 Character LCD, Nokia 5110 LCD module, 128×64 Graphical LCD Show and 2.4 inch TFT Contact screen LCD show.
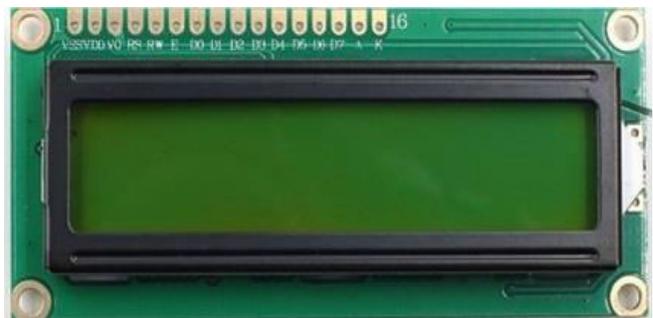
Figure.4.2. LCD

A 16x2 LCD means it can display 16 characters per line and there are 2 such lines. In this LCD each character is displayed in 5x7 pixel matrix.

4.3. ESP8266 NodeMCU Wi-Fi
Fig 4.3 shows the ESP8266 which is the name of a miniaturized scale controller planned by Expressive Frameworks. The ESP8266 itself is an independent WiFi organizing arrangement offering as an extension from existing small scale controller to WiFi and is likewise equipped for running independent applications. This module accompanies an implicit USB connector and a rich collection of stick outs. With a smaller scale USB link, you can associate NodeMCU devkit to your PC and blaze it with no inconvenience, much the same as Arduino. It is likewise promptly breadboard agreeable. The most essential approach to utilize the ESP8266 module is to utilize sequential directions, as the chip is fundamentally a WiFi/Sequential handset. Be that as it may, this isn't helpful. This makes it helpful to utilize the ESP8266 chip as we will utilize the outstanding Arduino IDE
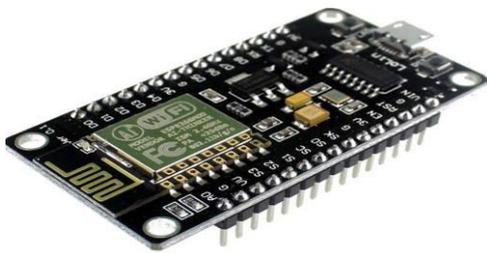
Figure.4.3 ESP8266 NodeMCU Wi-Fi

4.4. Relay

Fig 4.4 shows a relay which is an electrically worked switch. Current coursing through the loop of the transfer makes an attractive field which draws in a switch and changes the switch contacts. The loop current can be on or off so transfers have two switch positions and most have twofold toss (changeover) switch contacts. Transfers enable one circuit to switch a second circuit which can be totally isolated from the first. For instance a low voltage battery circuit can utilize a hand-off to switch a 230V AC mains circuit. There is no electrical association inside the transfer between the two circuits, the connection is attractive and mechanical. The loop of a transfer passes a moderately expensive current, commonly 30mA for a 12V relay.

Figure.4.4. Relay

4.5. Gas sensor MQ3

Fig 4.5 shows a MQ3 Alcohol Gas Sensor that detects the centralizations of liquor gas noticeable all around and ouputs its perusing as a simple voltage. The sensor can quantify groupings of 0.04mg/L to 4mg/L. The fixation detecting range is reasonable for breathalyzers. The sensor can work at temperatures from - 10 to 50°C and devours under 150 mA at 5 V. Associating five volts over the warming (H) pins keeps the sensor sufficiently hot to work accurately. Associating five volts at either the An or B pins makes the sensor discharge a simple voltage on different pins. A resistive burden between the yield sticks and ground sets the affectability of the indicator. The resistive burden can be adjusted for any specific application utilizing the conditions in the datasheet, yet an initial trial for the resistor chosen is to be 200 kΩ..

Figure.4.5 MQ3 Gas Sensor

Applications:
* Gas spill identification framework

* Flame/Wellbeing recognition framework
* Gas spill caution
* Gas locator

4.6. Power supply

Fig 4.6 shows the power source which is an AC voltage touches base at 230V. Since our electronic circuits require without a doubt, extremely negligible voltage and current we use venture down power transformer. Venture down transformer is planned so that 230V AC is downed to 12V. Further a rectifier circuit is utilized to change over AC to DC. Rectifier circuit comprises of four diodes framed in extension design to change over approaching AC to DC.
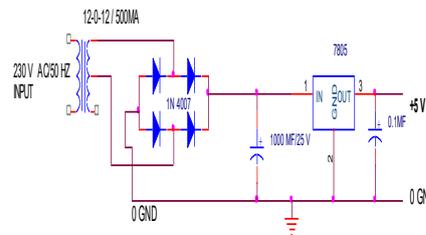

Figure.4.6 Power supply circuit

4.7. Transformer

Fig 4.7 shows the transformer which is a gadget that exchanges electrical vitality starting with one circuit then onto the next through inductively coupled conduits, the transformer's curls or windings. Transformer is utilized here to venture down the supply voltage to a dimension reasonable for the low voltage parts. The transformer utilized here is a 230/(12V-0-12V) advance down transformer. Channel circuits are utilized to change over undulating DC to smooth DC. The channel circuit is a capacitor, associated parallel to the yield of rectifier circuit. This smooth DC voltage will be in the scope of +12 volts. Be that as it may, we require just 5V supply for the task of smaller scale controllers and its supporting segments. Here again controller ICs, for example, 7805 is utilized to manage the approaching 12V DC to fixed directed 5V as yield. This DC managed 5V is connected to the circuits. Despite the fact that the circuit is working with 5V, the transfers are driven by 12V. For this reason 7806/7812 controller IC is also associated with the rectifier channel circuit. Subsequently 12V controlled is utilized for driving 12V transfers.
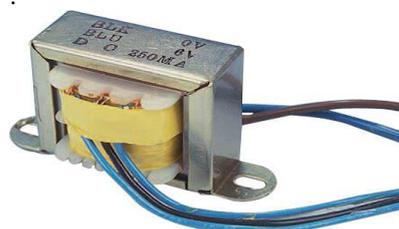
.

Figure.4.7. Transformer

5. WORKING

When the supply is turned ON, with respect to Fig 3, the transformer step downs from 230V to 12V. Since the voltage is AC, a scaffold rectifier is utilized to change over it to DC. A capacitor is utilized in the rectifier which changes over throbbing DC into pure DC.A voltage controller (7805) is utilized to keep up consistent voltage. A consistent 5V is given to every one of the segments in the pack with the exception of the hand-off. The transfer requires 12V which is legitimately sustained from the arduino input. At the point when the push

catches are squeezed, the scope and Latitude and longitude of the specific area is sent to the particular administration through IoT. The administrations given in proposed methodology are Ambulance, Fire Service and Police. In addition, a gas sensor (MQ3) is utilized to detect the spillage of LPG gas which gets told by the separate individual and principle supply (transfer) will be turned off naturally on safety aspects.

6. RESULT

E-safety provider helps the general population by giving administrations, for example, Police, Fire administration, Ambulance amid the season of crisis condition by squeezing push catches physically and the gas spillage will be detected consequently. Fig 6.1 (a) (b) (c) shows the output when the switch 1 is activated. When switch 1 is activated, indication given by LCD is shown in Fig 6.1 (a) . The latitude and longitude information will be sent to the police station and the corresponding location in the map will be displayed as shown in Fig 6.1 (b) & (c) respectively.

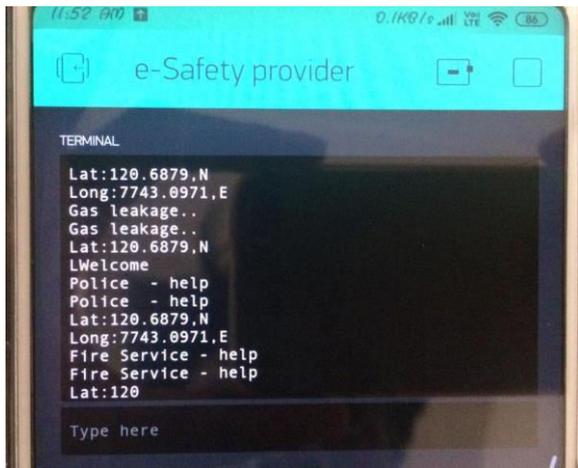**Figure.6.1 (a) LCD indication when switch 1 is activated**

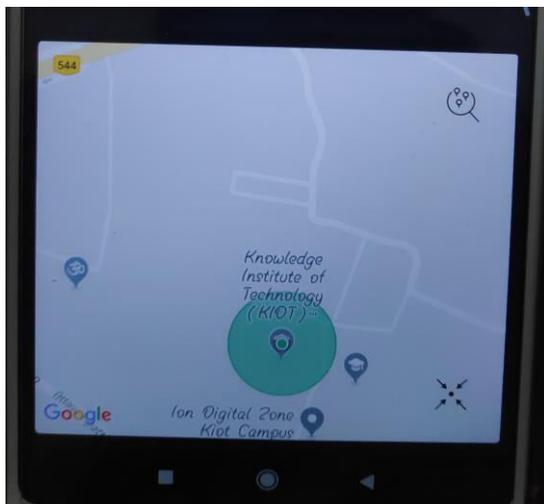**Figure.6.1 (b) Latitude and Longitude information of location**

Figure.6.1 (c) Location map for identification

Fig 6.2 (a) (b) (c) shows the output when the switch 2 is activated. When switch 2 is activated, indication given by LCD is shown in Fig 6.2 (a) the latitude and longitude information will be sent to the Fire administration and the corresponding location in the map will be displayed as shown in Fig 6.2 (b) & (c) respectively.
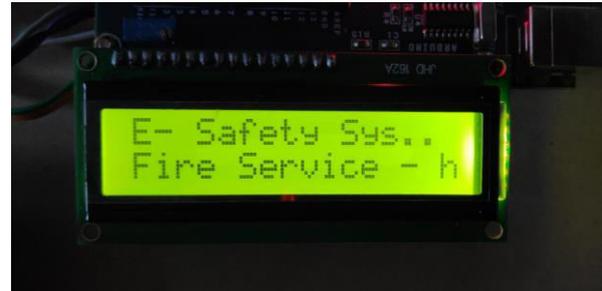

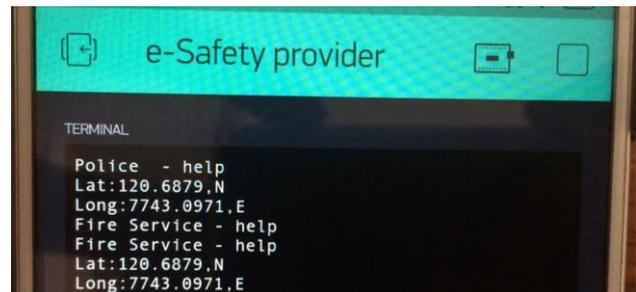**Figure.6.2. (a) LCD indication when switch 2 is activated**

Figure.6.2.(b)Latitude and Longitude information of location
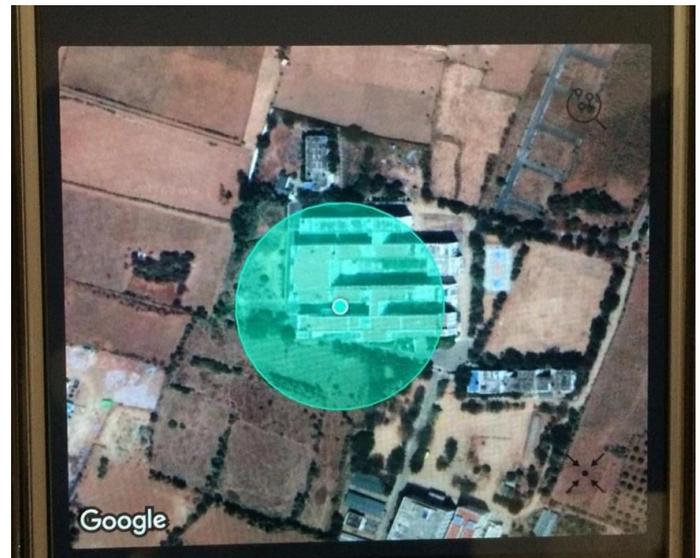

Figure.6.2. (c) Location map for identification

Fig 6.3 (a) (b) (c) shows the output when the switch 3 is activated. When switch 3 is activated, indication given by LCD is shown in Fig 6.3 (a) the latitude and longitude information will be sent to the Ambulance and the corresponding location in the map will be displayed as shown in Fig 6.3 (b) & (c) respectively.

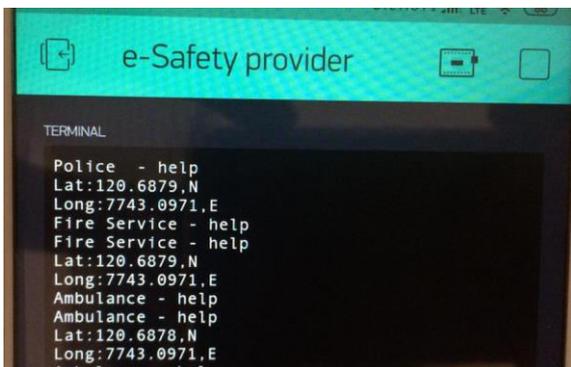**Figure.6.3. (a) LCD indication when switch 3 is activated**

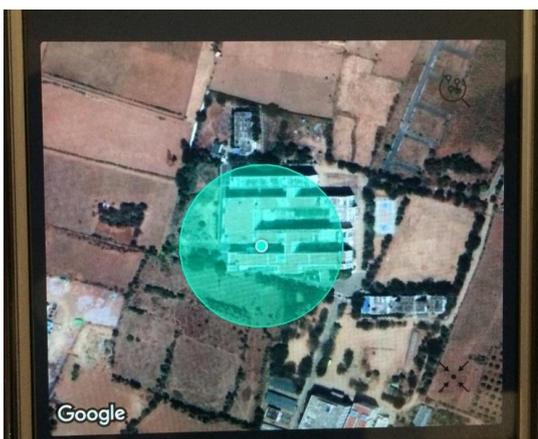**Figure. 6.3 (b) Latitude and Longitude information of location**

Fig 6.3 (c) Location map for identification

Fig 6.4 (a) (b) shows the output when the gas leakage is sensed by the gas sensor.
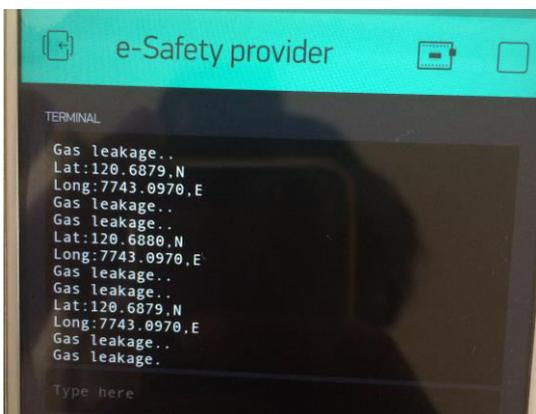

Figure.6.4 (a) Gas Leakage indication

Figure.6.4. (b) Latitude and Longitude information of location

7. CONCLUSION

In order to avoid miscommunication during accidents, we have developed this proposed method. By pressing the push buttons, the latitude and longitude information of the person will be identified and rescued by Police Station, Fire administration and Ambulance. The proposed method can be handled even by children, illiterate and senior citizen because it does not require any educational qualification to operate it. If any accident occurs, the strangers can also operate the model to save the human life, incase if the people get strucked in the accident place. The fundamental point of our venture is to give security which is guaranteed. Beside this, specialized tool utilized here is IoT which guarantee prompt help.

8. REFERENCES

[1] S. Wen, H. Heidari, A. Vilouras, and R. Dahiya, "A wearable fabric-based RFID skin temperature monitoring patch," in 2016 IEEE SENSORS, no. September. IEEE, oct 2016,pp.13.[Online].Available:http://ieeexplore.ieee.org/document/7808919/

[2]. B. Latré, B. Braem, I. Moerman, C. Blondia, and P. Demeester, "A survey on wireless body area networks," Wireless Networks, vol. 17, no. 1, pp. 1–18, 2011.

[3]. M. R. Yuce and J. Y. Khan, Wireless body area networks: Technology, implementation and applications, 2011. [Online]. Available: http://www.scopus.com/inward/record.url?eid=2s2.0-84881815399&partnerID=tZOtx3y1

[4]. T. Wu and F. Wu and J. M. Redouté and M. R. Yuce, "An Autonomous Wireless Body Area Network Implementation Towards IoT Connected Healthcare Applications," IEEE Access vol. 5, pp. 11413–11422, 2017.

[5]. H. Moustafa, H. Kenn, K. Sayrafian, W. Scanlon and Y. Zhang, "Mobile wearable communications [Guest Editorial]," in IEEE Wireless Communications, vol. 22, no. 1, pp. lO-l1, February 2015.

[6] K. Braam, Tsung-Ching Huang, Chin-Hui Chen, E. Montgomery, S. Vo and R. Beausoleil, "Wristband Vital: A wearable multi-sensor microsystem for real-time assistance via low-power Bluetooth link," Internet of Things (WF-IoT), 2015 IEEE 2nd World Forwn on, Milan, 2015, pp. 87-9l. doi: 10.l109/WF-IoT.2015.7389032

[7]. "Digital parenting: The best wearables and new smart baby monitors. The latest smart baby monitors and connected tech for your peace of mind,'Tech. Rep., 2015. [Online]. Available: http://www.wareable.com/parenting/the-best -wearab lesbab ies- smart-baby-monitors.

[8]. Apeh, S. T., K. B. Erameh, and U. Iruansi. "Design and Development of Kitchen Gas Leakage Detection and Automatic Gas Shut off System." Journal of Emerging Trends in Engineering and Applied Sciences, vol. 5, no. 3, pp. 222-228, 2014.

[9]. T.Soundarya, J.V. Anchitaalagammai, G. Deepa Priya, S.S. Karthick kumar, "C-Leakage: Cylinder LPG Gas Leakage Detection for Home Safety," IOSR Journal of Electronics and Communication Engineering, vol. 9, no. 1, Ver. VI, pp. 53-58, Feb. 2014.

[10] Ashish Shrivastava, Ratnesh Prabhaker, Rajeev Kumar, Rahul Verma, "GSM based gas leakage detection system." International Journal of Emerging Trends in Electrical and Electronics, vol. 3, no. 2, pp. 42-45, 2013.