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## International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering

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# Wireless Fire sensing & Monitoring System using IoT

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**ABSTRACT:** Now days we read Fire news in that so many people died and loss of goods & properties. Fire Monitoring System used to prevent from Fire & it saves the life of human beings & other losses. Fire IOT belongs to the application of IOT in fire fighting industries.

The three main advantages of IOT are

- 1) Fully Perceivable, reliable transmission and information processing, which precisely matches
- 2) Fire disaster surveillance, Alarming and disposal practiced in fire fighting management.
- 3) It used to be built into a firewall of social Security, propel the “four capacities” building of social entities in technology and assure the urban fire fighting security and maintain social stability.

Now why IOT technology? As we know IOT is now trending technology as it is an updated version we can say for embedded and other IT communication.

In 2008 the number of things connected to the Internet was greater than the people living on Earth. Within 2020 the number of things connected to the Internet will be about 50 billion.

The Internet of Things (IOT) is the network of physical objects or "things" embedded with electronics, software, sensors, and network connectivity, which enables these objects to collect and exchange data.

IOT allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration between the physical world and computer- based systems, and resulting in improved efficiency, accuracy and economic benefit.

**KEYWORDS:** Fire Sensing Sensors, Arduino Board, ESP8266 Wi Fi Module, IOT System.

### I.INTRODUCTION

The Basic system work with three parts such as Sensing the Fire & light intensity if both are more as per pre-determined level then it will send the data to Wi Fi Router through GSM Module.

The Data can access on LCD Display as well as on Internet through the Concept of IOT. Basically this system works with the Arduino with sensors. It Monitor the Temperature inside the Home or Industry with the help of sensors. If fire get then the Light intensity temperature will start to increase rapidly. To sense the light intensity & Temperature there are two different sensors are used in this system. Make the system more accurate in different Fire Monitoring conditions & prevents the losses from fire and save the lives of firefighting persons and peoples.

### II.LITERATURE SURVEY

Now a days IoT technology taking granted for most of the controlling applications like medical, defense, automobile, industrial project, smart cities and many more. It has been considered as another technological revolution. The Internet of Things (IoT), also called Industrial Internet, has been defined as a global infrastructure for the information society, enabling advanced services by interconnecting (physical and virtual) things based on existing IoT Based Fire Monitoring System 2018 and evolving interoperable information and communication technologies. High number of applications and controller can get connected to the IoT network.



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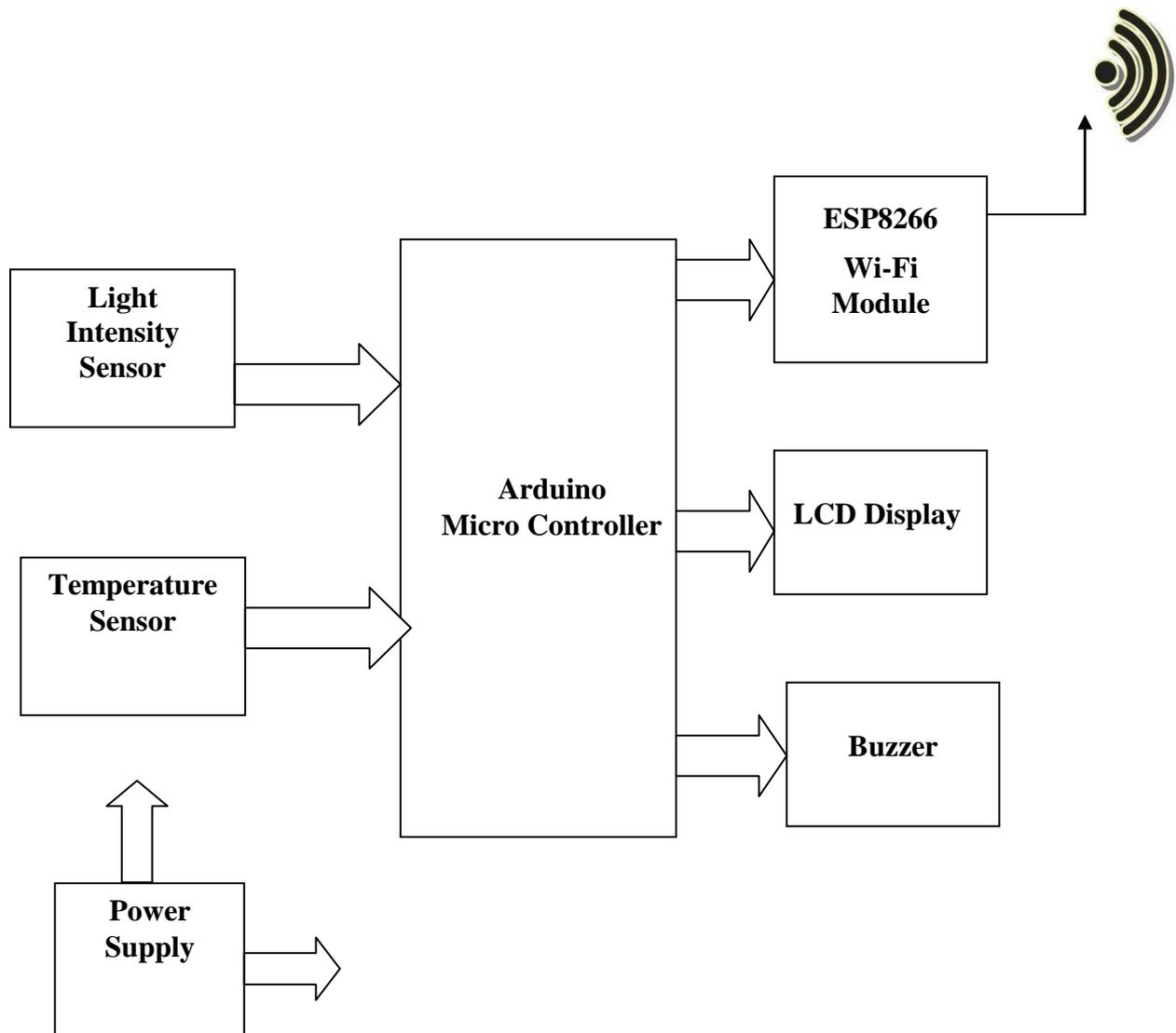
Therefore with the help of IoT technology we can develop a low cost Fire Monitoring system. New innovative technology revolves around how much a product is capable of implementing along with its price.

The light Intensity sensors and Temperature sensors work together so give more sensitive result with Fire.

With the help of IoT it's possible to check Light intensity & Temperature of the particular destination and make decision to how prevent or avoid from the fire. IoT based system gives wireless data available to user on mobile, and at workstation easily.

Its Time saving and convenient system to handle any one easily.

### III. PROPOSED METHODOLOGY AND DISCUSSION



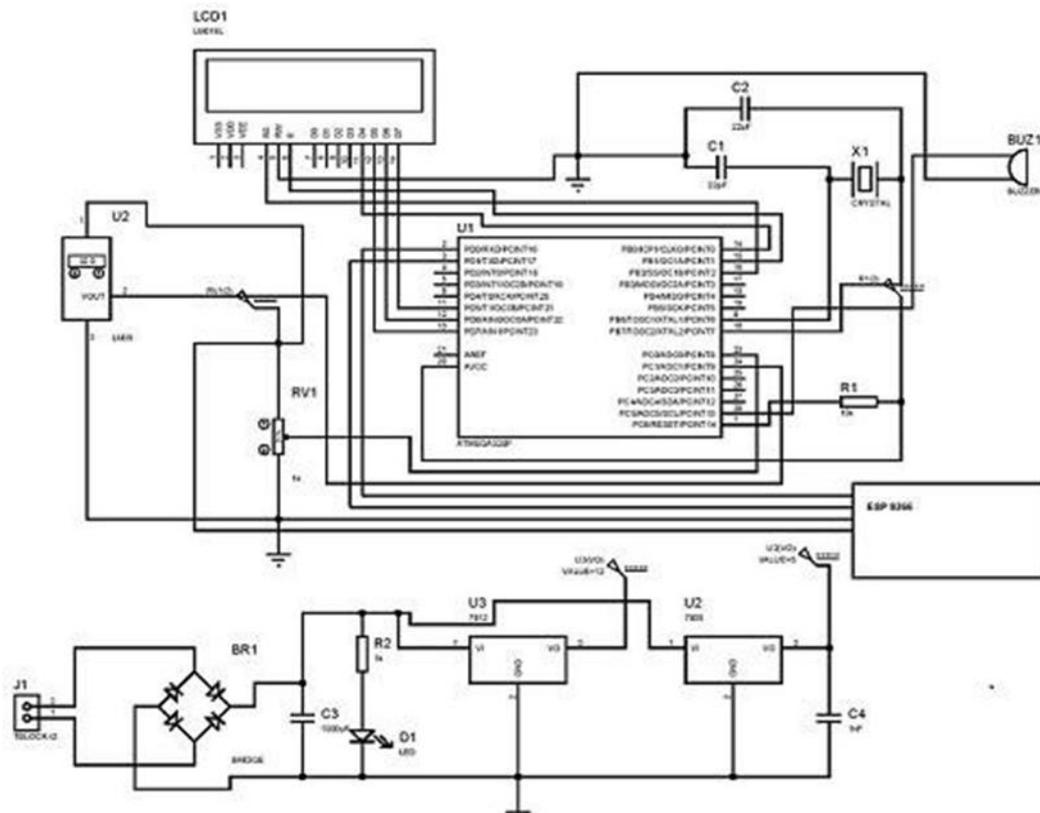
Block Diagram Fire sensing & Monitoring System using IoT

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Circuit Diagram of Fire sensing & Monitoring System using IoT

## IV.EXPERIMENTAL RESULTS WITH FIGURES



System Hardware Board



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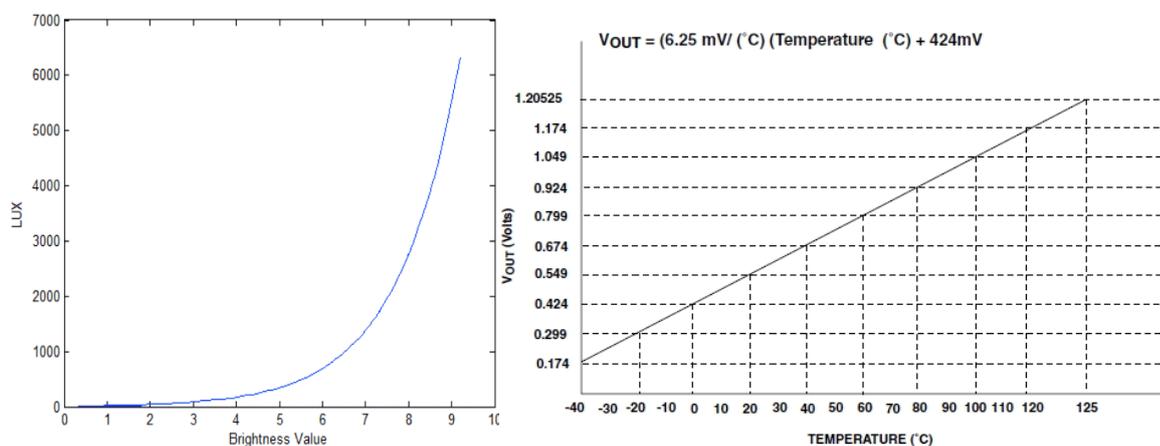
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Fire sensing & monitoring data result accessed on internet page.

The result access on LCD display in build on the system and same data access as wireless using Wi Fi module. The Temperature shows in Degree Celsius & light measured in luminance with the specific area in the percentage



## V. CONCLUSIONS

This project is intended to bring us a step closer toward a smart system where all appliances and devices Fire Monitoring System is more secure and fast responded as compared to the other system like Fire Sensors. More helpful in Fire disaster surveillance, Alarming and disposal practiced in fire fighting management. It used to be built into a firewall of social Security, building of social entities in technology and assure the urban fire fighting security and maintain social stability Data analysis over the cloud is also simple using the IOT.

## REFERENCES

- [1] IoT Based Intelligent Modeling of smart Home Environment for Fire Privation and safety by Faisal Syaed, AnandPaul, AbdulReheman, Journal of Sensor and Actuator Networks (2017)
- [2] Vinaysagar K N, Kusuma S M, —Fire Monitoring Using Internet of Things, International Research Journal of Engineering and Technology (IRJET), Volume 02, Issue 03, June-2015, page no.1965-1970.



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- [3] Y. Wang, W. Lu, H. Zhu, Experimental study on indoor channel model for wireless sensor networks and internet of things, in: Communication Atzori, L., Iera, A., Morabito, G. (2010). The Internet of Things: A survey, Computer Networks, 54(15), pp. 2787-2805
- [4] Technology (ICCT), 2010 12th IEEE International Conference on, IEEE, pp: 624–627.
- [5] ESP8266 :<http://download.arduino.org/products/UNOWIFI/0A-ESP8266-Datasheet-EN-v4.3.pdf>
- [6] Mihai T. Lazarescu, “Design of a WSN Platform for Long-Term Environmental Monitoring for IoT Application”, IEEE journal on engineering and selected topics in circuits and systems, volume 3, no 1, march 2013.
- [7] Arnoldo Díaz-Ramírez, Luis A. Tafoya, Jorge A. Atempa, Pedro Mejía-Alvarez, “Wireless Sensor Networks and Fusion Information Methods for Forest Fire Detection”, Elsevier journals on The 2012 Iberoamerican Conference on Electronics Engineering and Computer Science
- [8] Junguo ZHANG, Wenbin LI, Ning HAN, Jiangming KAN, “Forest fire detection system based on a ZigBee wireless sensor network”, published in Higher Education Press and Springer-Verlag 2008
- [9] K. Romer and F. Mattern, “The Design space of wireless sensor networks”, IEEE wireless communication, vol.11, no.6, pp.54- 61, Dec 2004
- [10] <http://learnline.cdu.edu.au/units/env207/fundamentals/weather.html>
- [11] [http://www.auburn.edu/academic/forestry\\_wildlife/fire/weatherelements.htm](http://www.auburn.edu/academic/forestry_wildlife/fire/weatherelements.htm)
- [12] <https://www.americanforests.org/conservation-programs/forests-and-fire>
- [13] [www.larpd.org](http://www.larpd.org) [9]. Arduino : an open-source electronics prototyping platform . [online] Available: <http://www.arduino.cc/>
- [14] I. Dietrich and F. Dressler, “On the lifetime of wireless sensor networks”, ACM Trans. Sensor Netw., vol.5, no. 1, pp. 5:1-5:39, feb 2009
- [15] A. Hasler, I. Talzi, C. Tschudin and S. Gruber, “Wireless Sensor Networks in Permafrost research-concept, requirements, implementation and challenges”, in Proc. 9th Int. Conf. Permafrost, Jun 2008, Vol1, pp. 669-674
- [16] S. Verma, N. Chug and D. Gadre, “wireless sensor network for crop field monitoring” in recent trend Inf., Telecommun. Comput., Mar 2010, pp. 207-2