

SECURITY ALARM USING IR TRANSMITTER

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Abstract: The IR theft alarm consists of infrared IR Transmitter, IR receiver and comparator IC 741. This detector circuit can be used to detect any human entry, obstacle, theft etc. In order to use the IR detector circuit to sense the human entry the IR sensors have to be placed opposite to each other. IR rays are directly reflected on the IR receiver, which in turn is given as input to the IC 741 which is used as a comparator. A comparator is a circuit which compares two voltages (Reference voltage and input voltage) and produces output according to the input. The output of a comparator is given to a transistor which acts as an inverter and drives a LED and a Buzzer. The Buzzer will give a sound if the LED is turned on. The introduction of uncooled microbolometer infrared (IR) technology is rapidly changing the face of IR imaging for both military and commercial users. Needs previously met with many high cost systems based upon photoconductive technology, image intensifier tubes, scanned FLIRs, or commercially available staring MWIR detectors, can now be met or surpassed with Loral Infrared and Imaging Systems (LIRIS)'s low cost uncooled products. Uncooled microbolometer technology is setting the new standard for user expectations by providing moderate performance at very low cost with low maintenance. By providing both the military and commercial markets with low cost, high performance products able to meet many imaging infrared sensor applications, new markets, users, and applications are being discovered. Much of the interest in uncooled microbridge imaging technology stems from the cost benefit to any potential user. This paper discusses the numerous technical advantages of our microbolometer technology, provides brief descriptions of the technology, the products available from LIRIS, and technology and producibility innovations that are ongoing at LIRIS.

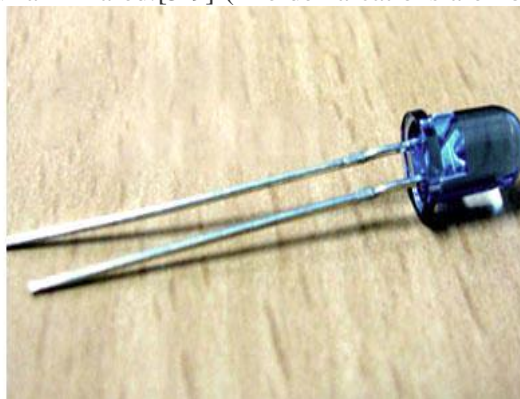
Keywords: IR, Transmitter, Receiver, LED.

I. INTRODUCTION

INFRARED RADIATION:

Infrared radiation is an electromagnetic wave with wavelength of 700nm to 1 mm. It is emitted by objects with temperature above 0 kelvin. [1-4] Furthermore intensity and

wavelength of infrared radiation depends on the temperature of the object. The infrared sensors are the sensors that detect/measure infrared radiation or change in the radiation from outer source source or inbuilt source. Also sensors that uses the property of infrared radiations to detect the changes in surrounding are termed as infrared sensors. Infrared radiation is the portion of electromagnetic spectrum having wavelengths longer than visible light wavelengths, but smaller than microwaves, i.e., the region roughly from $0.75\mu\text{m}$ to $1000\mu\text{m}$ is the infrared region. Infrared waves are invisible to human eyes. The wavelength region of $0.75\mu\text{m}$ to $3\mu\text{m}$ is called near infrared, the region from $3\mu\text{m}$ to $6\mu\text{m}$ is called mid infrared and the region higher than $6\mu\text{m}$ is called far infrared. [5-9] (The demarcations are not rigid;

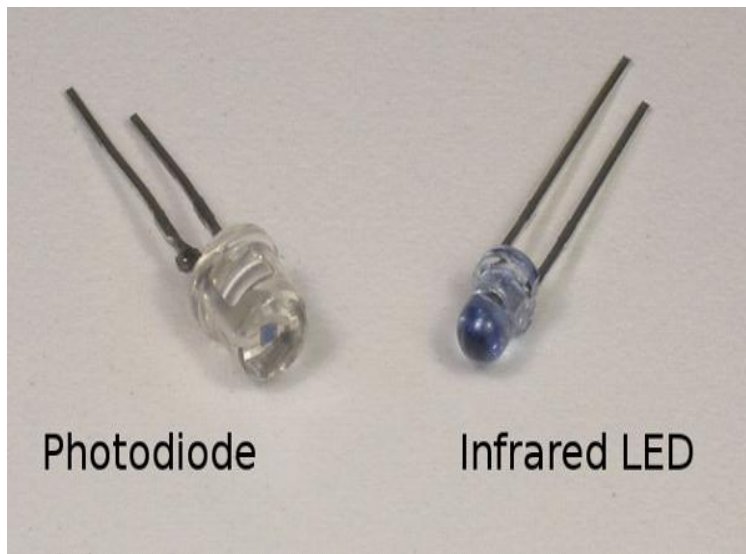
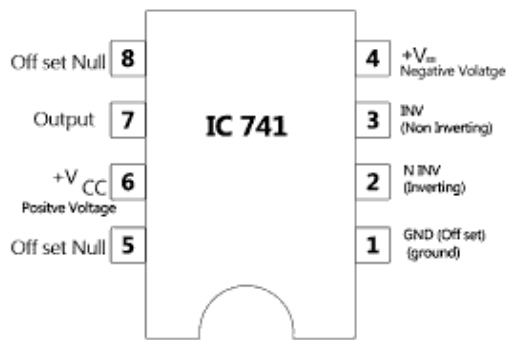


regions are defined differently by many).

II. a. ALARM SYSTEM AND SECURITY METHODS.

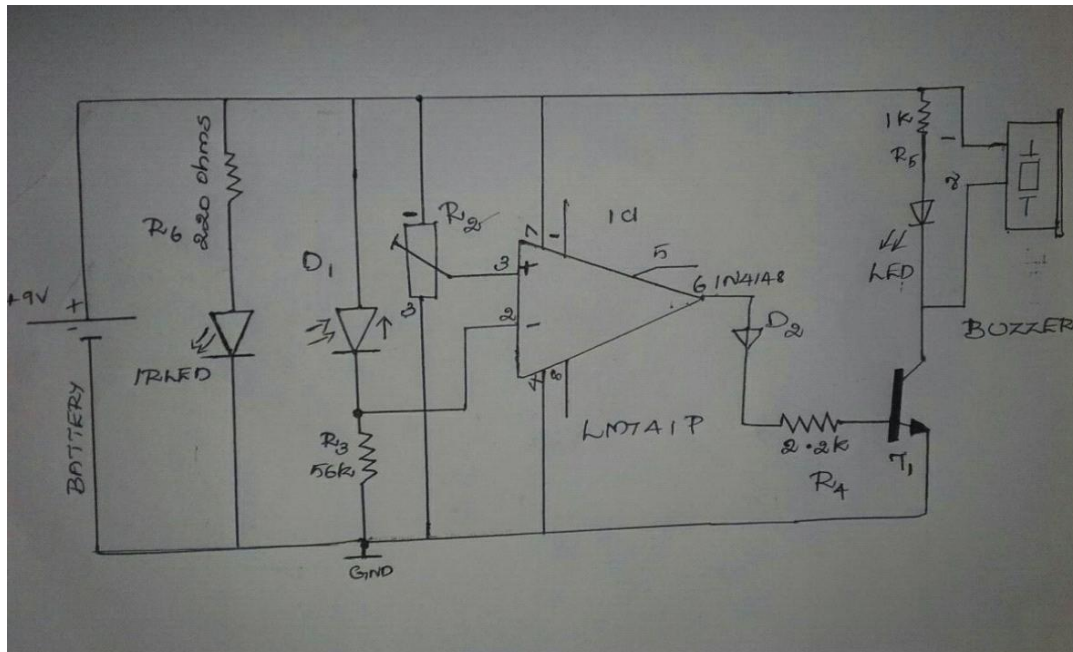
Alarm systems, remote communication devices, and article security methods are described according to some aspects. In one aspect, an article security method includes associating a remote communication device with an article to be secured; using the remote communication device, generating a plurality of electrical signals responsive to receipt of spurious electromagnetic energy and a plurality of wireless signals of a base communication device associated with the remote communication device to form an alarm system; distinguishing the electrical signals generated responsive to the spurious electromagnetic energy from electrical signals generated responsive to the wireless signals of the base communication device; and responsive to the distinguishing, generating a plurality of human perceptible alarm signals corresponding to respective ones of the electrical signals generated responsive to the wireless signals of the base communication device. [10-13]

IC 741



II. b. Detecting System

Theft detection electronic systems have been used in numerous applications including for example consumer retail applications to deter theft. Some theft detection electronic systems may operate in environments susceptible to electromagnetic interference emitted from sources other than components of the systems. The interference may degrade the operations of the theft detection electronic systems resulting in unreliable operation including signaling of false alarms.[14-20] Electromagnetic interference may result from different possible sources including for example cellular or cordless telephones or pagers. The impact of these interference sources may be significant in view of the increasing popularity and usage of these devices, including usage by individuals in areas which are secured. Just the fact that someone tampered with the line could trigger a supervisory alarm via the radio network, giving early warning of an imminent problem (e.g. arson). In some cases a remote building may not have PSTN phone service, and the cost of trenching and running a direct line may be prohibitive. It is possible to use a wireless cellular or radio device as the primary communication method.[21-26]



Various IP Alarm transmission protocols exist but most in use today are proprietary. Just as the formats used for conventional telephone reporting were standardized and published, broadband signaling for alarm reporting is being standardized today.

Some alarm systems use real-time audio and video monitoring technology to verify the legitimacy of an alarm. In some municipalities around the United States, this type of alarm verification allows the property it is protecting to be placed on a "verified response" list, allowing for quicker and safer police responses.[27-30]Fire sensors can be "isolated", meaning that when triggered, they will not trigger the main alarm network. This is important when smoke and heat is intentionally produced. The owners of buildings can be fined for generating False alarms that waste the time of emergency personal.

It is easier to know when there are false alarms, because the system is designed to react to that condition. Failure alarms are more troublesome because they usually require periodic testing to make sure the sensors are working and that the correct signals are getting through to the monitor. [31-36]Some systems are designed to detect problems internally, such as low or dead batteries, loose connections, phone circuit trouble, etc. While earlier nuisance alarms could be set off by small disturbances, like insects or pets, newer model alarms have technology to measure the size/weight of the object causing the disturbance, and thus are able to decide how serious the threat is, which is especially useful in burglar alarms.

III c. Alarm connection and monitoring:

Depending upon the application, the alarm output may be local, remote or a combination. Local alarms do not include monitoring, though may include indoor and/or outdoor sounders (e.g. motorized bell or electronic siren) and lights (e.g. strobe light) which may be useful for signaling an evacuation notice for people during fire alarms, or where one hopes to scare off an amateur burglar quickly. However, with the widespread use of alarm systems (especially in cars), false alarms are very frequent and many urbanites tend to ignore alarms rather than investigating, let alone contacting the necessary authorities. In short, there may be no response at all. In rural areas where nobody may hear the fire bell or burglar siren, lights or sounds may not make much difference, as the nearest responders may arrive too late to avoid losses.[37-40]

Remote alarm systems are used to connect the control unit to a predetermined monitor of some sort, and they come in many different configurations. High-end systems connect to a central station or responder (e.g. Police/ Fire/ Medical) via a direct phone wire, a cellular network, a radio network (i.e. GPRS/GSM) or an IP path. In the case of a dual signalling system two of these options are utilized simultaneously. [41-43]The alarm monitoring includes not only the sensors, but also the communication transmitter itself. While direct phone circuits are still available in some areas from phone companies, because of their high cost and the advent of dual signalling with its comparatively lower cost they are becoming uncommon. Direct connections are now most usually seen only in Federal, State, and Local Government buildings, or on a school campus that has a dedicated security, police, fire, or emergency medical department (in the UK communication is only possible to an Alarm Receiving Centre – communication direct to the emergency services is not permitted).

More typical systems incorporate a digital cellular communication unit that will contact the central station (or some other location) via the Public Switched Telephone Network (PSTN) and raise the alarm, either with a synthesized voice or increasingly via an encoded message string that the central station decodes. These may connect to the regular phone system on the system side of the demarcation point, but typically connect on the customer side ahead of all phones within the monitored premises so that the alarm system can seize the line by cutting-off any active calls and call the monitoring company if needed.[44,45]

V. CONCLUSION

In this paper, the design and development of a low-cost based device. This device has the advantage that it can be known easily to Non-Professional people easily. This device is cost effective. This device can be used in places like Multi-speciality hospitals, Malls, railway stations, Airports. By hearing the sound of a buzzer we know what is happening/happened inside.

VI. REFERENCES

1. Khanaa, V., Thooyamani, K.P., Udayakumar, R., Multi resigncryption protocol scheme for an identification of malicious mobile agent host, World Applied Sciences Journal, V-29, I-14, PP-299-303, 2014
2. Khanaa, V., Thooyamani, K.P., Udayakumar, R., A novel approach towards prevention of spam, phishing, controlling hierarchical access using Domain Keys, World Applied Sciences Journal, V-29, I-14, PP-181-185, 2014
3. Khanaa, V., Thooyamani, K.P., Udayakumar, R., Dual tree complex wavelet transform for adaptive interferogram residual reduction, Middle - East Journal of Scientific Research, V-20, I-9, PP-1059-1064, 2014
4. Khanaa, V., Thooyamani, K.P., Udayakumar, R., An improved rao-blackwellized particle filter for GPS-INS integrated navigation, Middle - East Journal of Scientific Research, V-20, I-9, PP-1111-1115, 2014
5. Khanaa, V., Thooyamani, K.P., Udayakumar, R., WSN based gas leakage detecting and locating system for petrochemical industry, Middle - East Journal of Scientific Research, V-20, I-9, PP-1107-1110, 2014
6. Khanaa, V., Thooyamani, K.P., Udayakumar, R., Information sharing time based controlled system in emergency situations, Middle - East Journal of Scientific Research, V-18, I-12, PP-1845-1850, 2013
7. Kumar, J.R., Vikram, C.J., Naveenchandran, P., Investigation for the performance and emission test using citronella oil in single cylinder diesel engine, Middle - East Journal of Scientific Research, V-12, I-12, PP-1754-1757, 2012
8. Manavalan, S., Golden Renjith Nimal, R.J., Efficient and evaluation properties of medicinal products and flowering plant conventional diesel, International Journal of Pure and Applied Mathematics, V-116, I-19 Special Issue, PP-407-411, 2017
9. Manavalan, S., Jose Ananth Vino, V., Extraction and optimization of Biodiesel from neem oil, International Journal of Pure and Applied Mathematics, V-116, I-19 Special Issue, PP-401-404, 2017
10. Manavalan, S., Rakesh, N.L., Heat transfer enhancement in shell and tube heat exchangers using twisted tapes, International Journal of Pure and Applied Mathematics, V-116, I-17 Special Issue, PP-405-407, 2017
11. Manikandan, J., Hameed Hussain, J., Design on blind shoe using ATMEGA328 arduino, International Journal of Pure and Applied Mathematics, V-116, I-19 Special Issue, PP-413-415, 2017

12. Manikandan, J., Hameed Hussain, J., Design and fabrication of vibrating table for separating of nuts using different sizes mesh, International Journal of Pure and Applied Mathematics, V-116, I-19 Special Issue, PP-417-419, 2017
13. Manikandan, J., Hussain, J.H., Design on blind shoe using ATMEGA328 micro controller, International Journal of Mechanical Engineering and Technology, V-8, I-8, PP-1575-1579, 2017
14. Manikandan, J., Hussain, J.H., Design and fabrication of blind shoe using ATMEGA328 micro controller and vibration motor, International Journal of Pure and Applied Mathematics, V-116, I-17 Special Issue, PP-287-289, 2017
15. Manikandan, J., Hussain, J.H., Design and fabrication of blind shoe using ATMEGA328 micro controller and vibration motor, International Journal of Mechanical Engineering and Technology, V-8, I-8, PP-1588-1593, 2017
16. Manikandan, J., Sabarish, R., Waste heat recovery power generation system using thermoelectric generators, International Journal of Pure and Applied Mathematics, V-116, I-17 Special Issue, PP-85-88, 2017
17. Meenakshi, D., Udayakumar, R., Protocol with hybridized bluetoothscatternet formation for wireless network, International Journal of Applied Engineering Research, V-9, I-22, PP-7299-7307, 2014
18. Meikandaan, T.P., Hemapriya, M., Use of glass FRP sheets as external flexural reinforcement in RCC Beam, International Journal of Civil Engineering and Technology, V-8, I-8, PP-1485-1501, 2017
19. Meikandaan, T.P., Hemapriya, M., Use of glass FRP sheets as external flexural reinforcement in RCC beam, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-481-485, 2017
20. Meikandaan, T.P., Hemapriya, M., Study on properties of concrete with partial replacement of cement by rice husk ash, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-503-507, 2017
21. Meikandaan, T.P., Hemapriya, M., Experimental behaviour of retrofitting of prestressed concrete beam with FRP laminates, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-509-513, 2017
22. Meikandaan, T.P., Hemapriya, M., Study of damaged RC beams repaired by bonding of CFRP laminates, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-495-501, 2017
23. Meikandaan, T.P., Hemapriya, M., Experimental study on strengthening of shear deficient RC beam with externally bonded GFRP sheets, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-487-493, 2017
24. Michael, G., Arunachalam, A.R., Srigowthem, S., Ecommerce transaction security challenges and prevention methods-new approach, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-285-289, 2017
25. Michael, G., Karthikeyan, R., Studies on malicious software, International Journal of Pure and Applied Mathematics, V-116, I-8 Special Issue, PP-315-319, 2017
26. Michael, G., Srigowthem, S., Vehicular cloud computing security issues and solutions, International Journal of Pure and Applied Mathematics, V-116, I-8 Special Issue, PP-17-21, 2017

27. Micheal, G., Arunachalam, A.R., EAACK: Enhanced adaptive acknowledgment for MANET, Middle - East Journal of Scientific Research, V-19, I-9, PP-1205-1208, 2014
28. Muruges, Kaliyamurthie, Thooyamani, K.P., ICI self-cancellation scheme for OFDM systems, Middle - East Journal of Scientific Research, V-18, I-12, PP-1775-1779, 2013
29. Muruges, Kaliyamurthie, Thooyamani, K.P., Preprocessing and postprocessing decision tree, Middle - East Journal of Scientific Research, V-13, I-12, PP-1599-1603, 2013
30. Nakkeeran, S., Hussain, J.H., Innovative technique for running a petrol engine with diesel as a fuel, International Journal of Pure and Applied Mathematics, V-116, I-18 Special Issue, PP-41-44, 2017
31. Nakkeeran, S., Nimal, R.J.G.R., Anticipation possessions for seismic use carbon black on rubbers, International Journal of Pure and Applied Mathematics, V-116, I-17 Special Issue, PP-63-67, 2017
32. Nakkeeran, S., Sabarish, R., New method of running a petrol engine with diesel diesel as fuel, International Journal of Pure and Applied Mathematics, V-116, I-18 Special Issue, PP-35-38, 2017
33. Nakkeeran, S., Vino, J.A.V., Prevention effects for earthquakes using carbon black on rubbers, International Journal of Pure and Applied Mathematics, V-116, I-17 Special Issue, PP-301-305, 2017
34. Nakkeeran, S., Vino, J.A.V., Performance development by using mesh plates in parallel and counter flows of heat exchangers, International Journal of Pure and Applied Mathematics, V-116, I-17 Special Issue, PP-291-295, 2017
35. Nalini, C., Arunachalam, A.R., A study on privacy preserving techniques in big data analytics, International Journal of Pure and Applied Mathematics, V-116, I-10 Special Issue, PP-281-285, 2017
36. Nalini, C., Ayyappan, G., Academic social network dataset applying various metrics for measuring author's contribution, International Journal of Pure and Applied Mathematics, V-116, I-8 Special Issue, PP-341-345, 2017
37. Nalini, C., Brintha Rajakumari, S., Iron toxicity of polluted river water based on data mining prediction analysis, International Journal of Pure and Applied Mathematics, V-116, I-8 Special Issue, PP-353-356, 2017
38. Nandhini, P., Arunachalam, A.R., Fault-tolerant quality using distributed cluster based in mobile ADHOC networks, International Journal of Pure and Applied Mathematics, V-116, I-8 Special Issue, PP-365-368, 2017
39. Nandhini, P., Arunachalam, A.R., Security for computer organize database assaults from threats and hackers, International Journal of Pure and Applied Mathematics, V-116, I-8 Special Issue, PP-359-363, 2017
40. Nandhini, P., Arunachalam, A.R., Mobile ADHOC networks: Security and quality of services, International Journal of Pure and Applied Mathematics, V-116, I-8 Special Issue, PP-371-374, 2017
41. Naveenchandran, P., Vijayaragavan, S.P., A high performance inverter fed energy efficient cum compact microcontroller based power conditioned distributed photo voltaic system, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-165-169, 2017

42. Naveenchandran, P., Vijayaragavan, S.P., Combination of wind energy-solar energy power generation, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-117-121, 2017
43. Naveenchandran, P., Vijayaragavan, S.P., A sensor less control of SPM using fuzzy and ANFIS technique, International Journal of Pure and Applied Mathematics, V-116, I-13 Special Issue, PP-43-50, 2017
44. Nima, R.J.G.R., Hussain, J.H., Design and fabrication of an indexing fixture in a shaper machine, International Journal of Pure and Applied Mathematics, V-116, I-18 Special Issue, PP-441-445, 2017
45. Nimal, R.J.G.R., Hussain, J.H., Deflection and stress analysis of spur gear tooth using steel, International Journal of Pure and Applied Mathematics, V-116, I-17 Special Issue, PP-119-124, 2017

