3.3.3: Number of papers in national / International Conference Proceedings during the year

Index Sheet

Sl. No	Name of the Teacher	Title of the Paper	Year of Publication	ISBN Number of the Proceeding	Page No
1	Mrs. Inbalatha	Performance Appraisal of DWT and PCA Based Cardiac ECG Arrhythmias Diagnosis With k_NN Classifier	2016-2017	24126-1408	1
2	Mrs. Inbalatha	Digital Stethoscope for Heart Sound Recognition	2016-2017		2
3	Mrs. Sridevi A	Implementation of AC Power stand by switch off out let using Arduino Mega 2560	2016-2017	2229-5518	3
4	Mr. B.Somashekar	Wireless Power Transmission through Air, Wood & Concrete Medium at Utility Frequency of 50 Hz"	2016-2017	2229-5518	4
5	Mr. B.Somashekar	Generation of high voltage DC using Diodes and capacitor in ladder network	2016-2017	2321-8169	5
6	Ms. Veena B	micro energy harvesting using piezoelectric material	2016-2017	2395-0056	6
7	Mrs. Sri devi A	PLC Based smart grid application to curtail and connect renewable energy sources to the grid	2016-2017	2395-0056	7
8	Mrs. DhanalakshmiV	wireless power transmission from solar input	2016-2017	2395-0056	8
9	Mr. Ronald Lawrence	Street light Automatic Intensity controller	2016-2017	2395-0056	9

15/12/21

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Certificate

This is to certify that Inbalatha.M has presented a paper entitled "Performance Appraisal of DWT and PCA Based Cardiac ECG Arrhythmias Diagnosis With k_NN Classifier" at the International Conference on Electrical, Electronics, Computer Science, Mathematics, Physical Education and Management (ICEECMPE) held at Pune, India on 25th December 2016.

Paper ID

IE-EECMPE-PUNE-24126-1408

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in the National Conference on Recent Trends in Electronics and Communication Engineering

NCRTEC-17 on 29th May 2017.

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Co-ordinator & HOD

Er. V.Krishna Reddy
Secretary

Dr. K R Suresh
Principal

Implementation Of Ac Power Stand By Switch-Off Outlets Using Arduino Mega2560

Ashwini M U, Menosha J K , Vishnu Priya K, Sridevi A

Abstract -- As more and more domestic appliances and consumer electronics are installed, house usage energy consumption tends to grow rapidly. A large number of domestic devices increase power consumption in two features, standby power and normal operation power. These two kinds of power consumption are proportional to the number of domestic devices. As a result, operational cost in domestic area is also increasing. to achieve efficient domestic energy management in addition to the technology of standby power reduction.

Keywords— stand-by power, current transformer, relay, Arduino mega2560.

1. INTRODUCTION

Here's a concept being introduced to save energy. Most of the times when systems like TV, Computers, DVD/CD players etc., are being run we just turn off the device with remote control but the AC supply keeps running. There is still power consumption (less of course) in such cases and most ICs in the device are still operating. This proposed project looks for such devices and put them off automatically.

The proposed project is built around Arduino Mega 2560 which is the heart and brain of the system, 3 electrical devices are sensed using individual current sensors whose current is continuously monitored by Arduino Mega 2560 and displayed on a 16x2 alpha numeric Liquid Crystal display . Arduino Mega 2560 differentiates between the working or standby of the device by the difference in the current monitored, if any device is found to be in standby mode Arduino Mega 2560 sends appropriate signals to the driver circuit which drives the relay to disconnect the device there by saving power.

2. ARDUINO

Arduino simplifies the process of working with microcontrollers, but it offers some advantage for teachers, students, and interested amateurs over other systems:

Inexpensive - Arduino boards are relatively inexpensive compared to other microcontroller platforms. The least expensive version of the Arduino module can be assembled by hand, and even the pre-assembled Arduino modules cost less than $80

Some people think of the entire Arduino board as a

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Cross-platform - The Arduino software runs on Windows, Macintosh OSX, and Linux operating systems. Most microcontroller systems are limited to Windows.

Simple, clear programming environment - The Arduino programming environment is easy-to-use for beginners, yet flexible enough for advanced users to take advantage of as well. For teachers, it's conveniently based on the Processing programming environment, so students learning to program in that environment will be familiar with the look and feel of Arduino

Open source and extensible software- The Arduino software is published as open source tools, available for extension by experienced programmers. The language can be expanded through C++ libraries, and people wanting to understand the technical details can make the leap from Arduino to the AVR C programming language on which it's based. Similarly, you can add AVR-C code directly into your Arduino programs if you want to.

Open source and extensible hardware - The Arduino is based on Atmel's ATMEGA8 and ATMEGA168 microcontrollers. The plans for the modules are published under a Creative Commons license, so experienced circuit designers can make their own version of the module, extending it and improving it. Even relatively inexperienced users can build the breadboard version of the module in order to understand how it works and save money.

microcontroller, but this is inaccurate. The Arduino board actually is a specially designed circuit board for programming and prototyping with Atmel microcontrollers.

The nice thing about the Arduino board is that it is relatively cheap, plugs straight into a computer's USB port, simple to setup and use (compared to other development boards).

3. HISTORY

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Wireless Power Transmission Through Air, Wood & Concrete Medium At Utility Frequency Of 50hz

Shilpa C, Mary Nancy D, Laxmi Nandihal, B Somashekar

Abstract – An attempt is made to perform wireless power transmission using circuits resonating at the utility frequency of 50 Hz. The purpose of this project is to develop a method for transmitting electrical power through air, wood and concrete walls. An equation for the theoretical transmission efficiency that considers the copperand core losses was derived through equivalent circuit analysis. There is good agreement between the experimental and calculated values. The transmission efficiency was found to be strongly dependent on the shape of the magnet pole pieces The ultimate goal of the present project is, simulation is done using mat lab and hardware design is done and obtained values are compared with theoretical and simulated values. There are three possible methods of wireless power transmission (WPT) electromagnetic induction, magnetic resonance, and radio waves.In the present study, the efficiency of resonant power transmission through concrete was investigated at the utility frequency of 50 Hz, using magnet pole piece configurations.

Index terms: wood, concrete, frequency, magnetic resonance, wireless power transmission (WPT).

———————————— ◆ ————————————

1 INTRODUCTION

The ultimate goal of the present project is to develop a method for transmitting a power operating instructures that humans cannot enter, such as areas contaminatedby radioactivity, which is an issue that has become increasinglyurgent in the wake of the Fukushima nuclear disaster. Thiswould require energy being sent through thick concrete walls,possibly containing steel frames, so that workers could avoidcontamination.

Thus there is a desire to use wireless power technology to eliminate the remaining wired power connection. Presently, several wireless power techniques are being pursued. The idea of wireless power transfer originates from the inconvenience of having too many wires sharing a limited Amount of power sockets. We believe that many people have the same experience of lacking enough sockets for their electronic devices Wireless Power Transfer via Strongly Coupled Magnetic Resonances by André Kurs, AristeidisKaralis, Robert Moffatt, J. D. Joannopoulos, Peter Fisher, Marin Soljacˇiˊc' Using self-resonant coils in a strongly coupled regime, we experimentally demonstrated efficient non-radioactive power transfer over distances up to 8 times the radius of the coils. We were able to transfer 60 watts with 40% efficiency over distances in excess of 2 meters. We present a quantitative model describing the power transfer, which matches the experimental results to within 5%. We discuss the practical applicability of this system and suggest directions for further study.Wireless Power

Transmission through Concrete Using Circuits Resonating at Utility Frequency of 60Hz by Hiroki Ishida and Hiroto Furukawa

IEEE the efficiency of resonant power transmission through concrete was investigated at the utility frequency of 60 Hz, using three different magnet pole piece configurations. The effect of a steel frame embedded in the concrete was also evaluated.

In the present research paper, the efficiency of resonant power transmission through air wood and concrete is calculated at the utility frequency of 50Hz using mat lab programming, for magnetic pole piece configurations. Mat lab simulation is also done.

2 BLOCK DIAGRAM

Input   medium   Output
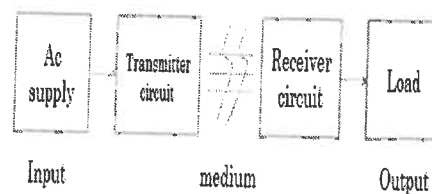
A. Source: AC supply given here is.
B.Transmitter coil: The transmitter coil is the one which transmits power wirelessly to the receiver coil.
C.Receiver coil: The receiver coil is the one which receives power from the transmitter coil.
D. Load 100watt incandescent bulb

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Generation of High Voltage DC using Diodes & Capacitors in Ladder Network

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Abstract— The project is designed& constructed to develop a high voltage DC of around 2KV from a input AC supply source of 230V using the capacitors and diodes that are constructed in the form of ladder network based on voltage multiplier concept. Generally transformers are used for stepping up of voltage in which the output of the secondary of the step up transformer increases the voltage and decreases the current. The other method for stepping up the voltage without the use of transformers is by using voltage multiplier circuit which converts AC to DC. These Voltage multipliers are primarily used to develop high voltages where low current is required. The concept of developing high voltage DC from single Phase AC is described in this project which can be enhanced up to 10KV. For safety purpose this project is restricted with a multiplication factor of 8 so that the output would be within 2KV.This concept of generation of high voltage using multiplier circuit is used in Electronic appliances such as CRT's, oscilloscopes and in industrial applications. The principle of voltage multiplier circuit is that the voltage keeps on doubling at each stage. Thus, the output of an 8 stage voltage multiplier circuit is 2KV DC which cannot be measured by using a standard multimeter. Hence a potential divider of 10:1 is used at the output such that 200V reading means 2KV.

Keywords :Diodes, Capacitors, 250V Supply, Multiplier circuit, Multimeter.

*****

INTRODUCTION

A voltage multiplier circuit is an electrical circuit which converts lower voltage alternating current (AC) into higher voltage direct current (DC) by means of capacitors and diodes in a ladder network. The output current decreases when the voltage is stepped up using transformers. Once a load is connected, the value of the output voltage decreases even though the measured value of open-circuit output voltage is several times greater than the input supply voltage. Voltage multipliers can be further classified as voltage doublers, triplers, and quadruplers etc. based on the ratio of output voltage to input voltage. For example, if the open circuit output voltage of a multiplier circuit is twice the peak of AC input voltage, it is called a voltage doubler.
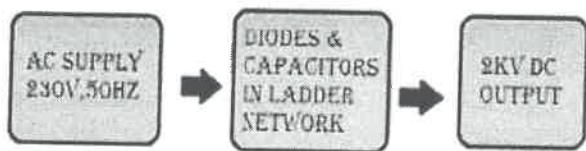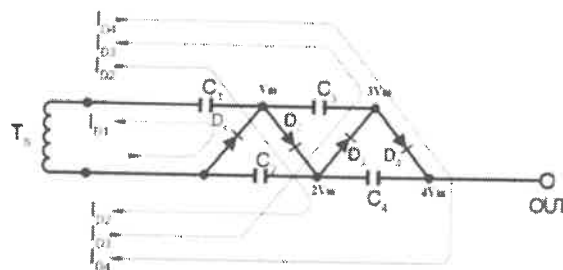

Fig 1. Block Diagram of Voltage Multiplier

HOW DOES A MULTIPLIER WORKS??

- When TS isNegative Peak - C1 charges through D1 to Vm
- When TS is Positive Peak - Vm of TS adds arithmetically to existing potential C1, thus C2 charges to 2Vm through D2.
- When TS is Negative Peak - C3 is charged to 2Vm through D3.
- When TS is Positive Peak - C4 is charged to 2Vm through D4.

Therefore, output voltage = Vm x N, Where N = the number of stages.

TYPES OF MULTIPLIER CIRCUITS

- Half wave series.
- Half wave parallel.
- Full wave parallel.
- Full wave series parallel.

Micro Energy Harvesting Using Piezoelectric Material

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Abstract - *The increase in energy consumption of portable electronic devices and the concept of harvesting renewable energy in human surrounding arouses a renewed interest. This project focuses on one such advanced method of energy harvesting using piezoelectric material. The process of acquiring the energy surrounding a system and converting it into usable electrical energy is termed POWER HARVESTING. Mechanical energy is one of the most ubiquitous energies that can be reused in our surroundings. Mechanical waste energies usually can be harvested by using vibration-to-electricity conversion. This project describes the use of PIEZOELECTRIC MATERIAL in order to harvest energy from mechanical vibration, mechanical stress and strain energy, human body which can generate milliwatt or microwatt level power. Piezoelectric material are excellent power generation devices in which, when a piezoelectric material is strained it produces an electric field; therefore, piezoelectric material can convert ambient vibration into electrical power. Piezoelectric materials have a vast application in real fields.*

Keywords – *Piezoelectric, Power generation, Vibration, Mechanical stress, Human body motion.*

1. INTRODUCTION

In last few years low power electronic devices have been increased rapidly. With the increase in energy consumption of these portable electronic devices, the concept of harvesting alternative renewable energy arises a new interest among us. Thus new power generation techniques are required for the next generation devices because of their ability to couple mechanical and electrical properties [1].

This project describes the use of piezoelectric material in order to harvest energy from mechanical vibration, mechanical stress and strain energy, human body motion which can generate   milliwatt   or microwatt level power. The concept of capturing the lost energy surrounding a system from vibrating sources in the environment is pervasive and accessible, found in places such as automobile engines, rotating equipment, and the human body, in all instances translating vibration into electrical energy via the deformation of a piezoelectric material. Harvesting this energy is one of

the most promising techniques owing to the high energy density. Piezoelectric materials have a crystalline structure that provides a unique ability to convert an applied strain into an electrical current and vice versa [2]. Piezoelectric material are excellent power generation devices in which, when a piezo is strained it produces an electric field; therefore, piezoelectric material can convert ambient vibration into electrical power. Piezoelectric materials have a vast application in real fields. Some of the latest applications are mentioned below. Currently, there is a need to utilize alternative forms of energy at passenger terminals like airports and railways across the world. Cleaner, more sustainable forms of electrical power are needed in order to keep costs lower, to maintain positive and productive relationships with neighbours and to insure a healthier environment for future generations [1]. The use of piezoelectric devices installed in terminals will enable the capturing of kinetic energy from foot traffic. This energy can then be used to offset some of the power coming from the main grid. Such a source of power can then be used to operate lighting systems.

2. PIEZOELECTRIC EFFECT

An unique property of the material which has the ability to convert mechanical energy to electrical energy i.e vibration to electricity.This effect is naturally found in Quartz but compared to this the energy harvesting is more advantageous in Lead Zirconate Titanate(PZT). This effect makes them excellent power generators.
This mechanism of producing electricity from these piezoelectric material is called Piezoelectric Effect.

There are two Piezoelectric Effects:
1.Direct Effect
2.Converse Effect.

1.DIRECT EFFECT - The direct effect (designated as a generator) is identified with the phenomenon whereby electrical charge (polarization) is generated from a mechanical stress. It is the property of the material to develop electric charge on the material when mechanical stress is applied on it.
Ex: found in gas lighters, PE sensors like acceleration sensors, pressure sensors.

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PLC Based Smart Grid Application to Curtail And Connect Renewable Energy Sources To The Grid

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Abstract - *This project is an attempt to develop a smart grid that would curtail and connect the renewable energy sources with the grid. The Matlab based simulation of the solar and wind sources connected to the grid is developed and interfaced with the hardware which is connected through the power line communication hardware. The decision making of the curtailing and connecting the renewable energy is made using the load margin, which defines the amount of load the power system would withstand. The voltage amplitude of the power system would get reduced when the load is increased to a level which is called the load margin. Matlab based implementation is carried out and the output is connected to the serial port which passes the decision making from the Matlab Simulink to the Power line Communication (PLC). The 8051 receiver of the decision making algorithm would curtail or connect the renewable energy to the grid.*

Keywords – Smart Grid, Power Line Communication, Renewable Energy Sources, Microcontroller 8051, Matlab/Simulink.

1.INTRODUCTION

Today's electrical infrastructure have remained electrical grid has been ageing infrastructure; the demand for electricity has gradually increased. The demand and utilization of electricity increased by 2.5% annually over the last 20 years. Today the electric power distribution network is very complex. Among the deficiencies are a lack of some ideas and switching mechanically causes slow response system, due to lack of system response blackouts were occurred over past few years.

The various factors are the growing population, the demand for the energy, the global climate condition, equipment failures problem, the capability limitations of electricity generation, energy storage problems, one-way communication and decrease in fossil fuels. Consequently, a new grid infrastructure is straight away needed to address these challenges. Smart grid is a new trend in electric power grid infrastructure to improve the overall efficiency and reliability of the system. Smart grid is the best technique for smooth integration of renewable energy sources through automated control and modern two way communications technologies [4].

The power factor plays a significant role inorder to design an energy saving scheme in load side. The power losses in the electrical network is increased due to lagging power factor in the output power[2].The non -linear load will be the major cause for lagging power factor. The designed scheme is concerning about maintaining the power factor of load side. Power factor be the cosine of the angle between the voltage and current. The current and voltage is sensed with current and voltage transformer.

The phase angle between the voltage and the current is calculated and the result will be compared in the microcontroller. These processes are continuously carried out by microcontroller and maintain the power factor automatically [1].
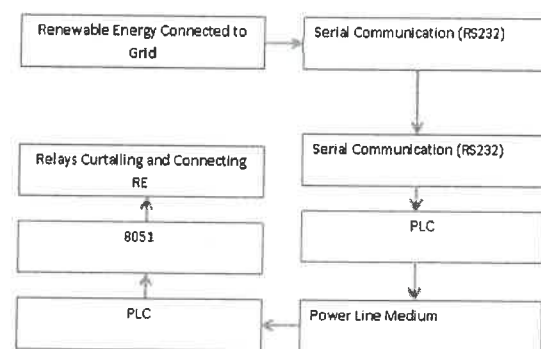
2.BLOCK DIAGRAM

Fig 2(a): Block Diagram

Matlab based implementation is carried out and the output are connected to the serial port which passes the decision making from the Matlab Simulink to the Powerline Communication (PLC).

Wireless Power Transmission from Solar Input

Indhu G1, Lisha R2, Sangeetha V3, Dhanalakshmi V4

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Abstract - The electrical power transmission from the source to destination takes place without any use of wires is known as wireless power transmission. Copper cables and conducting wires are eliminated for wireless transfer of electrical energy. Wireless power transmission (WPT) has a wide range of applications like charging of electric vehicles, Hybrid cars, electronic devices etc. Earlier transfer of wireless power has been achieved for charged batteries or AC source. In this paper the output from the solar panel is taken as the input to the system. DC-DC step up converter is been used since the solar panels output is very small it has to be stepped up to appropriate values. The stepped up dc voltage is given to the class-E amplifier and then converted into high frequency oscillating signal. This signal is further wirelessly transferred using a transformer. By achieving good magnetic coupling that exists between the transfer setup that is transmitter and receiver coil the power is been transferred. Later the bridge rectifier circuit converts the oscillating signal into DC before it is fed to the load.

Key Words: Solar, DC-DC converter, power transmission, wireless, load.

1.INTRODUCTION

The process of transmitting electrical power from one place to another without any conducting cables is called wireless power transmission. By the use of this technology transmission of electrical energy to remote areas without wires is possible. This can be used for applications where either an instantaneous amount or a continuous delivery of energy is needed, but where conventional wires are unaffordable, inconvenient, expensive, hazardous, unwanted or impossible. Nikola tesla demonstrated transmission of electrical energy without wires in early 19th century by inventing Tesla coil, which was used to transfer power wirelessly using radiative method.

The power can be transmitted using Inductive coupling for short range, Resonant Induction for mid-range and Electromagnetic wave power transfer for high range. WPT is a technology that can transport power to locations, which are otherwise not possible or impractical to reach. Charging low power devices and eventually mid power devices by means of inductive coupling could be the next big thing. Wireless power transmission for two meters of distance for 60 watt power with 60cm coil diameter was successfully done by MIT researcher's team. And achieved 40% efficiency.

2. METHODS OF WPT

2.1 Induction (Inductive Coupling):

This mode is the application of magnetic coupling which normally takes place in transformers. There are two coils transmitting and receiving coils and power is transferred due to mutual coupling. This mode is broadly classified in to short range and midrange. short range proved good efficiency and distance of transmission is limited and for midrange transmission distance is more but less efficient.

2.2 Electrical Resonance Mode:

It is advance method of inductive coupling along with resonance which proved good efficiency compared to induction mode. The mode is achieved by resonating transmitter and receiver coil for a particular frequency and power is transferred. The coils itself acts as inductors and by just attaching capacitance plate resonance can be achieved. we can use solenoid with capacitor plates placed closely. This method is known as wireless

Street Light Automatic Intensity Controller

Vamshi krishna V[1], Ramesh Babu N[2], Pradeep Kumar S[3], Ronald Lawrence J[4]

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Abstract - *In present day, the maintenance of street light is one of the major problem for electricity boards in India. Also, there is scope for saving power during off peak time i.e. in from around midnight 12AM to 04AM in the morning. The methods that are currently used to maintain and control the street light is more complex and uneconomical. In this paper a new technique is proposed to control the intensity of LED Street lights using LDR, and to automate street lights using PIR sensors, and LDRs, resulting in power saving. Implementation is done using Arduino UNO. For effective communication, a wireless messaging system through SMS has been adapted in the system to monitor the working of the street lights.*

Key Words: SMS, GSM, PIR, LDR, Street lights, Power, Arduino UNO

1. INTRODUCTION

Electricity is the major demand in the developing countries like India. One of the major area where power is consumed is in street lighting. It is found that there is wastage of power by operating the street lights due to manual operation. Also the power is wasted when there is no person or animals in the street. During this time if street light is OFF or if the intensity is brought down, then some amount of power could be saved. So, this paper proposes an advanced system to maintain street lights and save the power wastage in street lights.

The electricity board can reduce the maintenance cost and number of personnel by automated control. In the proposed system, street lights can be operated (ON and OFF) by sending SMS through GSM. In proposed system we can control and monitor the street light with feedback module using Global Service for Mobile communication (GSM) via Short Message Service (SMS). Feedback module provides the acknowledgement for each SMS by checking the status of the light, For example if an operator sends a message as ON street light, the acknowledgement is received as „YES" if the respective light is ON or else „NO" if the respective light is unable to switch ON.

In rural areas at midnight the necessity of the street light is very less. Here too, there is wastage of power. This can be prevented if the street light can sense and operate only when a vehicle, human or an animal come in its vicinity. In

proposed system this has been taken care by sensing them using PIR and LDR module.

A brief view of the Methodology is described in section I, Experimental results and performance analysis is presented in Section II. Section III concludes the paper.
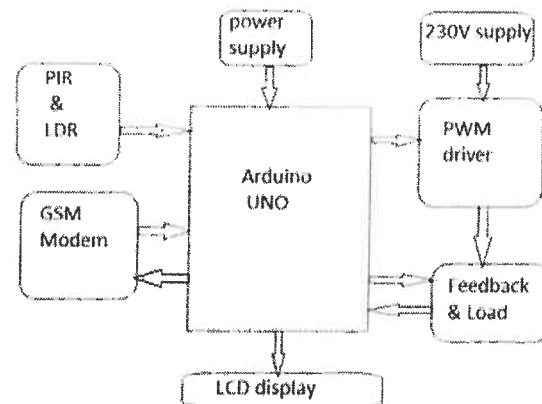
2.BLOCK DIAGRAM

Fig -1: Block Diagram

The PIR (Passive Infra-Red) Sensor is a pyroelectric device that detects motion by measuring changes in the infrared levels emitted by surrounding objects. This motion can be detected by checking for a high signal on a single I/O pin which operates on 5V supply. The PIR sensor has elements made of a crystalline material that generates an electric charge when exposed to infrared radiation. The changes in the amount of infrared striking the element change the voltages generated, which are measured by an on-board amplifier.

The device contains a special filter called a Fresnel lens, which focuses the infrared signals onto the element. As the ambient infrared signals change rapidly, the on-board amplifier trips the output to indicate motion. It senses humans or animals near by the respective light. If the PIR senses anything nearer to the light, causes the change in amount of infrared striking the element which in turn changes the voltage generated. Hence suddenly the Arduino UNO increases the intensity of the respective light.