May-June 2020
ISSN: 0193-4120 Page No. 5199-5202

Power Saving Technique for Multiple Sensors

M.Kaushik[1], P.Dass[2]

[1, 2]Dept of Electronics and Communications Engineering, Saveetha School of Engineering, SIMATS, Chennai
[1]Sai.kaushik153@gmail.com, [2]dass@saveetha.com

Article Info
Volume 83
Page Number: 5199-5202
Publication Issue:
May-June 2020

Article History
Article Received:*19 November 2019*
Revised: *27 January 2020*
Accepted: *24 February 2020*
Publication: *16 May 2020*

Abstract
This paper refers to various sensors that are being used continuously in on condition throughout the day which results in power wastage. In order to overcome the problem smart power saving technique is introduced .In this technique the relay switch is used which will transfer the power to the next sensor only when light glows in the second sensor. The implementation of such sensors can be done in street light detection method. The streetlight is fixed to LDR (Light Dependent Resistor) sensors. This smart power saving technique makes the street light failure detection technique more efficient. The principle is totally based on relay switch. Further it can also be implemented in sensors fixed in banks.

Keywords: *Intel board, LDR, Power saving, Relay switch, Sensor.*

1. Introduction

Breakout Board

The Intel inventor may be a computer module introduced by Intel as a system for body ware computer systems and IOT devices. The devices are at the start proclaimed to be identical size and form as a secure digitalport and containing a dual-core Intel Quark x86 computer hardware at four hundred megahertz per second human action via Bluetooth and 802.11. A later announcement has modified the computer hardware to a twenty two nm Silver mount dual-core Intel Atom computer hardware, and in September 2014 released a second version of Breakout was displayed at forum, that was larger and thicker than a regular Coyote State card.

First version 1.0

Its launch was announced at Consumer Electronics Show in Jan 2014. Intel chief executive officer Brian Krzanich showed a demo of a baby observation system that has beencreated pattern Intel creator.
He additionally proclaimed that the paradigm Language and Mathematical are going to be accessible on the IntelBreakout which the devices will be running on LinuxOS.

Second Version

Its launch was declared at Consumer Electronics Show in Gregorian calendar month 2014. Intel Chief Operating Officer Brian Krzanich show cased a demo of a baby observation system that was created practice Intel artificer. He to boot declared that the paradigm Language and Mathematical are getting to be accessible on the Intel artificer that the device are getting to be able to run UNIX.

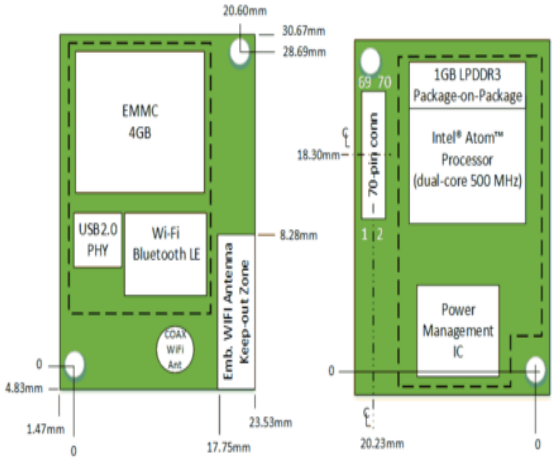

Figure 1: Arduino UNO Board Compatible for the Breakout Model

Intel released an Arduino Uno compatible board (with solely four PWM rather than 6 pins) that accepts the

May-June 2020
ISSN: 0193-4120 Page No. 5199-5202

Intel Breakout module. The advances versions have six PWM pins

Intel breakout board

Board INFO/YIELD Features: ·
- 20 digital input/output pins,

6 analog inputs:- ·
- 1 UART (Rx/Tx) ·
- 1 I²C ·
- 1 ICSP (In-system programming) 6-pin header (SPI) ·
- Micro USB device connector OR (via mechanical switch) dedicated specified size USB host Type-A connector ·
- DC power jack (7 to 15VDC input) of the incident no particulate radiation.

They are conjointly referred to as photograph detectors. They are created from semiconductor materials having high resistance. The area unit many various symbols accustomed indicate a LDR. .

Light Dependent Resistor

A light Dependent Electrical device (LDR) may be a device whose electrical resistance of the incident non particulate radiation. Therefore they are lightweight sensitive devices. They are conjointly referred to as photograph detectors. They are created from semiconductor materials having resistance. These area unit many various symbols accustomed indicate a LDR.

Relay Switch

At the point when partner electrical flow is progressively developed the loop it delivers an attractive transition that stimulate the curl and together the resultant development of the portable contact either represents the moment of truth association precarious and quick contact.

In the event that the arrangement of contacts was shut once the hand-off was de-stimulated, at that point the development opens the contacts and breaks the affiliation, thus the different way around if the contacts were open. When this to the curl is moved, the loop is returned by a power, regarding [*fr1] as sturdy as an aftereffects of the fascination in its casual position. Normally this power is given by a spring, anyway gravity is likewise utilized as a rule in modern engine starters. Most transfers unit of estimating processing plant made to work rapidly during exceedingly low-strain application this diminishes clamor; in a horrendously high voltage or current application it decreases arcing.

2. Problem Statement

Power consumption is the important aspect for today's technology. Most of the sensors used nowadays are consuming power even when not in use. It may be any sensor either an IR sensor, PIR sensor, Ultrasonic sensor. Each consumes power even when not in use. In today's modern world we have seen many projects which helps our society. This project mainly deals with the power wastage of street light.

The sensors used in street light failure detection are continuously in on condition throughout the day. This leads to power wastage. In order to overcome this problem smart power saving technique is introduced. In the previous chapter the street light failure detection is identified, though it didn't take the power wastage issue in its account.

This chapter deals with main problems and looking forward to make the smart power saving technique very efficient.

3. Methodology

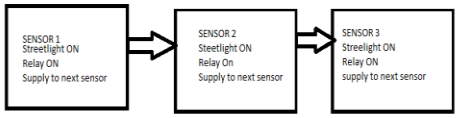

Figure 2: Methodology Block Diagram

When sensor 1 is on, the streetlight 1 is on this leads to on the relay which will send power supply to the next sensor in streetlight 2. Likewise when sensor 2 gets on, the streetlight 2 is on with relay fixed in second streetlight which further sends the the supply to the next streetlight. By using this technique power consumption is effectively reduced.

Scopes of the project ·
- Smart Power saving technique is new and innovative ·
- It is still not implemented anywhere ·
- Applicable to any sensors even in industrial applications ·
- A relay circuit acts as the main component of the power saver ·
- Saves power with more efficiency.

4. Smart Power Saving Technique

Various sensors used are continuously in on condition throughout the day which results in power wastage. In order to overcome the problem smart power saving technique is introduced .In this technique the relay switch is used which will send the power supply to the next sensor only when light glows in the second sensor.

The implementation of such sensors can be done in street light detection method. The streetlight is fixed with LDR (Light Dependent Resistor) sensors. This smart power saving technique makes the street light failure detection technique more efficient. The principle is totally based on relay switch. Further it can also be implemented in sensors fixed in banks.

May-June 2020
ISSN: 0193-4120 Page No. 5199-5202

5. Design

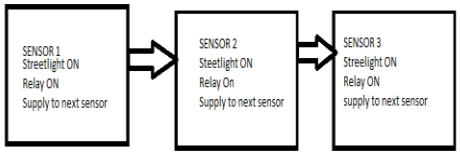

Figure 3: Design of the project

6. Components

This board is that the biggest and most interface well off board available. It choices info/yield pins perfect with Arduino Uno, twenty advanced info/yield pins (counting four pins PWM yields). It offers about six simple sources of info, UART, I2C, ICSP 6-pin header (SPI) and a little USB or committed typical size USB have Type-A instrumentation. The rundown doesn't complete here, there is conjointly a little USB gadget (associated with UART) and an American state card instrumentation.
Breakout is a conventional base to make on as a piece of comes any place you might want contrasting sorts of interface or just need to explore.

7. Intel Breakout Board

This breakout board is far similar than the Arduino one, though slightly larger than the Breakout module itself. The board encompasses a minimal set of options together with exposing the native one. 8V INFO/YIELD of the Breakout module, 0.1 in grid INFO/YIELD array of through-hole solder points, USB-OTG with small Type-AB instrumentally and USB OTG power switch there is a device and a USB to device UART bridge with USB small Type-B instrumentality. This board will save heaps of area.

Working

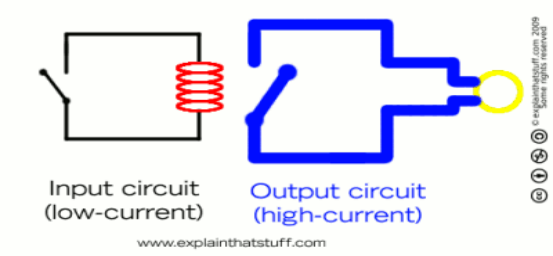

Figure 4: Relay Diagram (open circuit)

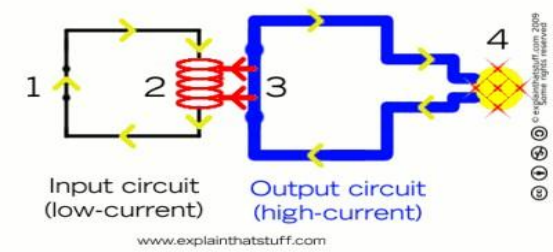

Figure 5: Relay connecting the circuit (close circuit)

- The input circuit (dark circle) is progressed and no present moves through it till something turns it on. The yield circuit (blue circle) is moreover progressed.
- When a little current streams inside the info circuit, it actuates the electromagnet (appeared here as a red curl), which delivers a field surrounding it. ·
- The invigorated magnet pulls the square of metal inside the yield circuit toward it, shutting the switch and allowing a far bigger current move through the yield circuit.
- The yield circuit works a high-flow machine like a light or an electrical engine

8. Future Scope

Energy conservation is very important currently a todays. Supercharged by a renewable offer of energy by star panels there's no harmful atmosphere emissions and reducing light-weight pollution.

- Power conservation by automatic shift off.
- Automatic on/off shift operation.
- Street light-weight fault detection.
- If criticism not repaired by space wise system then it send criticism to the upper level authority.
- Wireless Communication.
- Can be implementing on any street lighting circuit. • Reduces power consumption.
- Reduces man power.
- Enhance the life time of the road light-weight lamp. • Reduces power consumption.
- Automatic candlepower management on detection of car motion and human motion.

9. Result

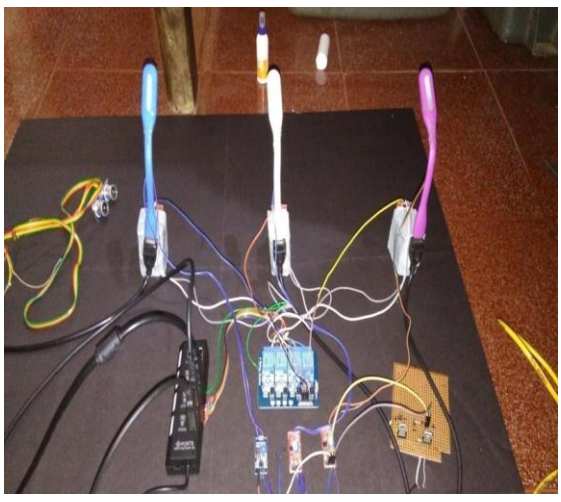

Figure 6: The setup and result of the project

10. Conclusion

The power saving technique is hence resolved and can be implemented in streetlights. The present output can be seen through multimeter. The multimeter shows the zero power wastage this implies that sensors are used only when the vehicle passes.

May-June 2020
ISSN: 0193-4120 Page No. 5199-5202

References

[1] GhassanMaan Salim, Hashimah Ismail, NiranjanDebnath, A. Nadya. "Optimal light power consumptionusing LDR sensor", IEEE International Symposium onRobotics and Intelligent Sensors (IRIS), 2015.

[2] D. A. Devi and A. Kumar, Design and Implementation of CPLD based Solar Power Saving System for Street Lights and Automatic Traffic Controller, International Journal of Scientific and Research Publications, Vol. 2, Issue11, November 2012.

[3] J. Mohelnikova, Electric Energy Savings and Light Guides, Energy& Environment, IASME/WSEAS International Conference on, Cambridge, UK, February 2008, pp.470-474

[4] F. Ramadhani, K. Abu Bakar, M. Gary Shafer, "Optimization of Standalone Street Lighting Control", The International Conference on Technological Advances in Electrical Electronics and Computer Engineering, 2013, pp. 584-588.

[5] P. Yeswanth Kumar, T. Sakhti Ganesh, "Design of Hybrid Electronic Circuit for Energy Management in Automobiles", IEEE Indicon Conference, Dec 2005, pp. 286-288.

[6] "Light's Labour's Lost" in International Energy Agency (IEA), Paris, 2006.

[7] V. K. Bhangdiya. "Low power consumption of LED street light based on smart control system", International Conference on Global Trends in Signal Processing, Information Computing and Communication (ICGTSPICC), 2016.

[8] Murat Kuzlu, Manisha pipattanasomporn, Saifur Rahman. “Assesment of communication Technologies Supporting Smart Streetlighting Applications”. IEEE International Smart Cities Conference, 2018