Abstract

In this projected system, we have a tendency to discuss the universal problems concerning energy management for natural resource, Wind / electrical phenomenon (PV) hybrid facility so as to enhance energy potency with LED’s because the source of illumination and putting the turbine additionally to star. The LED’s are energy saving, high bright potency and high helpful life to the projected system. And within the same method the position of the rotary engine plays a serious role, we have a tendency to had overcome that style for effective power production. By putting the short armed 2 rotary engine within the horizontal path as a result of the too and fro motion of the vehicles gas pressure is developed on the blades of the rotary engine. The pressure is developed from each the directions keeps the rotary engine in continuous motion of all the vehicles like Trucks, Lorries and Buses, etc., as a result of this, AN uninterrupted power generation by star at day time and whenever the vehicles crosses the trail each at day and night the rotary engine rotates and energy is generated. This may place down the electricity bill and cut back the pollution rate to a definite limit. During this project we have a tendency to use one start electrical pole for a security purpose.
1. INTRODUCTION

One of the foremost vital civilization indexes is that the development of an honest transportation network. This includes streets, roads and highways that have to be compelled to be adequately lit in order that an enough visibility is warranted in order to decrease the accident rate and increase the flow of the vehicles and safety. However, these streets and roads area unit lit perpetually for over thirteen hours daily. This successively needs an enormous quantity of wattage to lightweight all the streets and roads. Concerning half-hour of the overall wattage of any country is consumed in lighting the roads and therefore the street. The first one during this space is selecting Light Emitting Diode (LED) technology, instead of metal vapour lamp and Compact Fluorescent Lamp (CFL) as a result of which the most effective resolution since it offers profit like power saving and long life. Star and wind energy is more practical and traditional variety of renewable energy obtainable at the most it doesn't depends on any issue, solar power begins once the day begin and wind is offered with a too and fro motion of the vehicle at streets. There is abundant research’s on progressing to overcome power crisis. The demand in country is hiking every and each day. But, the obtainable power doesn't meet the need. Therefore, renewable energy resources should be utilized for the maximum amount to chop down the demand rate and it’s also non-polluting. At present, the problem is the way to utilize and manage these resources.

We additionally give two IR detectors which can be used for saving battery in the dead of night time. At this point lightweight is continue on & we have a tendency to facilitate IR detector this can be used only if vehicle is come back and cross IR detector then lightweight is mechanically on otherwise off this is use for power saving purpose.

2. PROBLEM DEFINITION

The objective for this project is to style a sensible lighting system that targets the energy saving and autonomous operation on economical cheap for the streets. Build associate energy saving good lighting system with integrated sensors and controllers. Style a sensible lighting system with standard approach style, that makes the system measurability and expandability. Style a sensible lighting system that compatibility and measurability with alternative business product and automation system, which could embrace quite lighting system.

AND earlier we tend to engineered associate Emergency switch provided in order that any outsider will inform on to hospitals the actual location mistreatment GSM module just in case of accidents.

3. HARDWARE DESCRIPTION

3.1 Arduino Uno

The Arduino Uno could be a microcontroller board supported the ATmega328 (datasheet). It's fourteen digital input/output pins (of that half-dozen may be used as PWM outputs), half-dozen analog inputs, a sixteen megacycle per second quartz
oscillator, a affiliation, an influence jack, AN ICSP header, and a push. It contains everything required to support the microcontroller; merely connect it to a laptop with a USB cable or power it with a AC-to-DC adapter or battery to induce started. The Uno differs from all preceding boards therein it doesn't use the FTDI USB-to-serial driver chip. Instead, it options the Atmega8U2 programmed as a USB-to-serial device. "Uno" suggests that one in Italian and is called to mark the forthcoming unleash of Arduino one.0. The Uno and version are the reference versions of Arduino, moving forward

![Figure 1: Block diagram of smart street light with emergency system](image)

3.2 Solar panel 12v
Solar panel refers to a panel designed to soak up the sun's rays as a supply of energy for generating electricity or heating. A PV module may be a pre-packaged, connected assembly of generally 6x10 star cells. star PV panels represent the solar battery of an electrical phenomenon system that generates and provides star electricity in industrial and residential applications every module is rated by its DC output power beneath normal take a look at conditions, and generally ranges from one hundred to 320 watts. The potency of a module determines the world of a module given identical rated output – associate V-E Day economical 230 watt module can have double the world of a Sixteen Personality Factor Questionnaire economical 230 watt module. There ar a number of star panels on the market that ar exceptional nineteen potency. one star module will turn out solely a restricted quantity of power; most installations contain multiple modules. A electrical phenomenon system generally includes a panel or associate array of star modules, associate electrical converter, and typically electric battery and/or star hunter and interconnection wiring.

The price of alternative energy, alongside batteries for storage, has continuing to fall so in several countries it's cheaper than normal fuel electricity from the grid (there is "grid parity"). for instance in 2015, a mean point Europe or the U.S. might use around three,000 kilowatt-hour (kWh) in electricity annually.[1] Twelve 280 watt star PV modules (each generatin250 kWh annually) would generate a minimum of three,000 kWh annually, even in an exceedingly cloudy country just like the Britain. associate example value would be concerning £8,000 within the Britain, $12,000 within the U.S., or €10,000 within the Eurozone in 2015, that is for certain to continually fall,[2] permitting permanent energy independence for every family. Most governments have feed-in tariff systems that enable
home-owner to sell surplus energy back to the grid, and create a future profit on their investment.

3.3 LDR Sensor

A photo electrical device or light-dependent electrical device (LDR) or photoconductive cell could be a light-controlled rheostat. The resistance of a photo electrical device decreases with increasing incident lightweight intensity; in different words, it exhibits photoconduction. A photo electrical device may be applied in photosensitive detector circuits, and light- and dark-activated change circuits.

A photo electrical device is created of a high resistance semiconductor within the dark, a photo electrical device will have a resistance as high as many mega ohms (MΩ), whereas within the lightweight, a photo electrical device will have a resistance as low as many hundred ohms. If incident lightweight on a photo electrical device exceeds a particular frequency, photons absorbed by the semiconductor offer sure electrons enough energy to leap into the physical phenomenon band. The ensuing free electrons (and their hole partners) conduct electricity, thereby lowering resistance. The resistance vary and sensitivity of a photo electrical device will well take issue among dissimilar devices. Moreover, distinctive icon resistors might react well otherwise to photons among sure wavelength bands.

A physical phenomenon device may be either intrinsic or outside. In intrinsic devices the sole obtainable electrons area unit within the valence band, and thus the gauge boson should have enough energy to excite the negatron across the complete band gap. Outside devices have impurities, conjointly known as dopants, additional whose state energy is nearer to the physical phenomenon band; since the electrons don't have as so much to leap, lower energy photons (that is, longer wavelengths and lower frequencies) area unit sufficient to trigger the device. If a sample of chemical element has a number of its atoms replaced by phosphorus atoms (impurities), there'll be further electrons obtainable for physical phenomenon.

3.4 Circuit Diagram

![Figure 2: Circuit diagram for proposed Project](image-url)
4. ADVANTAGES AND APPLICATIONS

Advantages Compare with Solar Street Lighting
1. Wider applicable areas.
2. Longer battery life.
3. More cost-effective in windy areas
4. Easier installation & Maintenance

APPLICATIONS
1. In private apartment
2. In solar street system
3. Railway and Bus system

5. CONCLUSION & FUTURE SCOPE

In this project we have a tendency to use hybrid energy. Hybrid energy contains wind and alternative energy. We have a tendency to save the electricity bill and consume the facility. Hybrid system will be designed to maximize use of Renewable sources. In future we have a tendency to use sun light-weight is a superb supply of plight for home and industrial use like ostensible pools, car washes and Laundromats etc.

6. REFERENCES