

REVIEW ON SMART HIGHWAY WITH GREEN ENERGY

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Abstract—

Now days, in the globalized world, the trace is the means to join countries. In recent times all the old technologies changed into new technology like fridge, Television, etc. so that the all the goods are changed but highways are not changed. The Smart Highway with green energy the generality to make trace roads smarter, safer, and farther energy-effective for generating electricity using solar energy, wind energy, charging the vehicles using these powers, for lighting, and for covering the condition of the road. The vehicles moving on roads generates a large amount of energy in form of vibration that is completely wasted also they produce hothouse feasts which ultimately lead to global warming and deplete the ozone subcase. So, there is a need to make some revolutionary changes in the generality of highways. We can use the vibration energy produced by vehicles that are converted into electricity. Also, by using different ways, wind energy, solar energy, and other types of green powers produced on highways are also converted into electricity. So, in this paper, we are trying to throw some light on ways of exercising green energy on highways in a fruitful manner. **Keywords-Wind energy, Smart roadways, LED lightning, solar energy, GSM, LDR detector.**

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1. INTRODUCTION

The idea of planning a brand new system for the sensible route that doesn't consume a vast volume of electricity and illuminate massive areas with the this field. Furnishing road lighting is one of the foremost necessary and ultraexpensive arrears of a megacity. Lighting will regard for

10-38 of the overall energy bill in typical cosmopolises worldwide. Street lighting may be a significantly essential concern for public authorities in developing countries owing to its strategic significance for profitable and social stability. Inefficient lighting wastes vital capitalist resources each time, and poor lighting creates unsafe conditions. Energy provident technologies and style mechanisms will cut the posterior price of road lighting drastically. Rising oil prices feature the abuse of property power force operations.

Wind vitality may be a name amongst the foremost fascinating property power force advancements on account of its high proficiency and low contamination. Be that because it could, since the vitality created by wind vitality transformation fabrics changes with environmental meteorology and wind speed, stunning kinds in vitality generation could expand the operating charges of the electrical structure in feather light of the very fact that the stores are going to be developed and also the implicit troubles are going to be placed for the unvarying quality of the capability give An automatic plant soddening system victimization microcontroller ATMEGA328P is programmed analogous that it offers the intrude signals to the motor via the relay. The soil detector is connected to the Arduino board that senses the condition content gift in the soil. Whenever there's a modification inside the condition content of the soil, the detector irrigation system. Soil condition sensors live the meter water content in the soil. Since the direct measuring mensuration of free soil condition wants to remove, drying and weight of a sample, soil condition sensors live the meter water content indirectly by victimization another property of the soil, like electrical phenomenon, stuff constant, or commerce with neutrons, as a deputy for the condition

content.

The relation between the measured property and soil condition ought to be marker and may vary hoping on environmental factors like soil kind, temperature, or electrical natural phenomenon. Reflected range radiation is choked with the soil condition and is employed for remote seeing in geophysics and husbandry. Transmittable inquiry instruments are going to be employed by farmers or gardeners. Soil condition sensors generally raise sensors that estimate meter water content. Another class of sensors lives another property of condition in soils called water eventuality. These sensors are generally noted as soil water implicit sensors and embody pressure measures and mineral blocks. The most allowed within the blessed field technologies is Robotization, Power consumption, and value effectiveness. Automation is meant to gauge back force with the backing of intelligent systems. Power saving is that the main study ever because the force of the capability is carrying lowered because of varied reasons. The most end of the design is Automatic road power saving system with LDR, wind shop and automatic irrigation this mechanically rather than doing manual. Therefore it's simple to form solar energy, wind energy can be converted into electricity and also we can use this electricity in numerous operations on roadways similar as for charging the vehicles using these powers, for lighting, and for covering the condition of the road etc. Vibration produced by vehicles can be converted into electricity and further can be used for charging the electric buses or for lightning the road lights, or can be stored in any charge storing bias. There's abundant quantum of free space available between lanes and in both right and left side of lanes, which can be employed by placing windmills and solarplates.

2. LITERATURE REVIEW

Now days, the globalized world, trace is the means to join countries, cosmopolises, cosmopolises etc. In recent times all the old technologies changed into new technology like fridge, TV, Washing Machine, collarrets. So that the all the goods are changed but highways are not changed.

The "Smart Highway with green energy" is the generality to make trace roads smarter, safer, and more. Energy effective for generating electricity using solar energy, vibration energy, wind energy, for charging the vehicles using these powers, for lighting, and for covering the condition of the road. The vehicles moving on roads generates large amount of energy in form of vibration that is completely wasted also they produce hothouse feasts which ultimately leads to global warming and depletes ozone sub estate. So, there is a need to make some revolutionary changes in generality of highways. We can use the vibration energy produced by vehicles that's converted into electricity. Also, by using different Ways, wind energy, solar energy and other type of green powers produced on trace are also converted into electricity. So, in this paper we are trying to throw some light on ways of exercising green energy on trace in fruitful manner.

The worldwide concern to alleviate the soaring energy extremity introduces us to the small-scale renewable energy generation as a preferred enabling source for trace lighting. Still, the expansive cost and performance inconsistency of the pure solar panel grounded results further motivate sweats in designing a mongrel energy result for trace lighting is controlling multiple energy sources to give an effective terrain for such a small-scale operation environment and perfecting the battery performance. Further specifically, we consider the solar panel and Vertical Axis Wind Turbine (VAWT), which utilizes energy from the aerodynamic losses produced by vehicles in the roadways, as two main sources for energy generation. This mongrel system allows for generating continued energy by solar during the day and by VAWT at all day and night times whenever a vehicle passes the lamppost. For maximum effectiveness, amicro-controller is employed in this system to smell the internal conditions for utmost performance. A test- bed prototype is developed to estimate the performance of the proposed system over a pure solar grounded lighting system via a projected cost analysis. The result demonstrates pullout of solar reliance followed by a lower energy demand in the mongrel lighting system

according to different business position of the trace.

The paper original deals with the present situation of the wind energy in Asian country. Wind energy is accessible with none price and it does not emit any greenhouse gases. This makes it a good force of energy product for any developing state. The sphere of wind energy has tremendous compass for invention, rephrasing to macrocosm operations and tremendous profitable chance. It's crucially necessary for Asian country, as our frugality continues to evolve, and that we should guarantee each Indian has access to chance, good jobs and keep. For that we're going to want bigger coffers. Clean, property, renewable- and inversely necessary, domestic sources of energy area unit essential to satisfy the eventuality of Asian country within the returning times and it's sure that wind energy can play a serious half in shaping India's future. Wind generation has surfaced because the biggest force of renewable energy within the world. Keywords Wind Energy, Non typical Energy, Sources of Wind Energy, Renewable Coefficients I. Preface Asian country is that the home of one.25 billion individualities i.e.17.5 of the entire world population, that makes it second most thickly settled country in world. Asian country has the alternate quickest growing frugality of the earth. India's substantial and sustained profitable process over the times is fitting huge demand on its energy coffers.

Automatic road light control system is used in ultramodern world for energy savings by using Light dependent Resistor (LDR). Currently the human has not enough time, and he/ she is unfit to find time indeed to switch the lights on or out. This new system can be used more effectively in case of road lights. [1] proposed system, the road lights will be switched on just before the sun sets and are switched off the coming day morning when there's sufficient light on the road. The proposed model also uses stir detector to control the intensity of light. Huge power is consumed when utmost the vehicles don't move during the late [2] This paper shows that the proposed System is fairly low cost, effectiveness is better than the being system.

3. CONCLUSION

This review is proposed to support to deals with the present situation of the wind energy in Asian country. Wind energy is [4]

accessible with none price and it does not emit any greenhouse gases. This makes it a good force of energy product for any developing state. The sphere of wind energy has tremendous compass for invention, rephrasing to macrocosm operations and tremendous profitable chance. It's crucially necessary for Asian country, as our frugality continues to evolve, and that

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REFERENCE

- Wang, X.C., Guo, P. also, Huang, X.B. (2011) A Review of Wind Power Forecasting Models. Vitality Procedia, 12, 770-778.
<http://dx.doi.org/10.1016/j.egypro.2011.10.103>
- Zhao, D.M., Zhu, Y.C. also, Zhang, X. (2011) Research on Wind Power Forecasting in Wind Farms. Procedures of the 2011 IEEE Power Engineering and Automation Conference, Wuhan, 8-9 September 2011, 175-178.
<http://dx.doi.org/10.1109/PEAM.2011.6134829>
- Sideratos, G. also, Hatzigargyriou, N.D. (2007) An Advanced Statistical Method for Wind Power Forecasting. IEEE Transactions on Power Systems, 22, 258-265.
<http://dx.doi.org/10.1109/TPWRS.2006.889078>
- Ma, L., Luan, S.Y., Jiang, C.W., Liu, H L. also, Zhang, Y. (2009) A Review on the Forecasting of Wind

Speed and Generated Power.

- [5] Inexhaustible and Sustainable Energy Reviews, 13,915-920.
<http://dx.doi.org/10.1016/j.rser.2008.02.002>
- [6] Lange, M. what's more, Focken, U. (2008) New Developments in Wind Energy Forecasting. Procedures of the 2008 IEEE Power and Energy Society General Meeting, Pittsburgh, 20-24 July 2008, 1-8.
- [7] Zhao, X., Wang, S.X. What's more, Li, T. (2011) Review of Evaluation Criteria and Main Methods of Wind Power Forecasting? Vitality Procedia, 12, 761- 769.
<http://dx.doi.org/10.1016/j.egypro.2011.10.102>
- [8] Chong Han, Alex Q. Huang, Wayne Litzenberger, Loren Anderson, Abdel-Aty Edris "STATCOM Impact Study on the Integration of a Large Wind Farm into a Weak Loop Power System", (1266-1272), 2006.
- [9] Katsuhisa Yoshimoto, Toshiya. Nanahara, Gentaro Koshimizu, Yoshihisa Uchida "New Control Method for Regulating State-of-Charge of a Battery in Hybrid Wind Power/Battery Energy Storage System", (1244- 1251), 2006. <http://www.wwindea.org> EWEA yearly report, "Winning with European Wind Creating power, helping the earth", 2008.
- [10] Hossain, A.K. and Badr, O (2007) „Prospects of renewable energy utilization for electricity generation in Bangladesh“. Renewable and Sustainable Energy Reviews, 11(8), 1617-49.
- [11] Wu Yue, Shi Changhong, Zhang Xianghong, Yang Wei (2010), „Design of new intelligent street light control system“ 8th IEEE international Conferences on Control and Automation b(ICC), Page(s): 1423
- [12] Waze M. A, Nafi N, Islam N. T. And Sayema. S. M. (2010) „Design and fabrication of automatic street light control system“ Engineering e-t transaction (ISSN 1823- 6379) vol. 5, no. 1, pp. 27-34.
- [13] Priyank Pitubhakta, Pragati Shined (2015) „Intelligent system for Highway street lights“ (ISSN 2321-0869) vol.3, issue.2
- [14] APD(2007). Bangladesh: Statistical Appendix, Prepared by Wafa Abdelati and Erik Lueth (APD), Approved by the Asia and Pacific Department, International Monetary Fund.
- [15] Vijay Laxmi Kalyani, Manisha Kumari Dudy, Shikha Pareek, “GREEN ENERGY: The NEED of the WORLD”, Journal of Management Engineering and Information Technology (JMEIT), Volume -2, Issue- 5, Oct. 2015, ISSN: 2394 – 8124.
- [16] www.elprocus.com/infrared-ir-sensor-circuit-and-working/
- [17] Vijay Laxmi Kalyani, Shruti Lohiya, Kritika Gupta, “Electric Car Charged By Vibration Energy: A Future Technology, Journal of Management Engineering and Information Technology (JMEIT), Volume -2, Issue- 5, Oct. 2015, ISSN: 2394 – 8124
- [18] S.Selvam, Edison Prabhu .K , Bharath Kumar M.R , Andrew Mathew Dominic, “Solar and Wind Hybrid power generation system for Street lights at Highways” International Journal of Science, Engineering and Technology Research (IJSETR), Volume 3, Issue 3, March 2014].
- [19] <http://www.gizmag.com/vehicle-road-eightelectricity/29990/>.
- [20] <http://www.t3.com/features/driving-the-smart-highway-nxphonda-siemens-smart-road>
<https://en.wikipedia.org/wiki/Sensor>