Design and Implementation of Energy Harvesting and Pollution Control System using Nano Tree

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Abstract: *In today's globalized society, energy consumption is a fundamental pillar of societal advancement and evolution. Street lighting applications consume a lot of electricity with the benefit of preventing accidents and ensuring the safety of pedestrians at night. The main considerations in the present field of technologies are automation, power consumption, and cost-effectiveness. Alongside, rapid industrialization and urbanization have resulted in an exponential increase in air pollution causing adverse effects on living beings and deterioration of fossil fuels. Hence, the use of regenerative sources of energy is crucial to facilitate the high power demand. The proposed system presents the development of a Nano tree using the Arduino board to collect renewable solar energy from the environment used for street light illumination by using sensors at minimum electrical energy consumption. The Nano tree can be used as an alternative to streetlights with the addition of LED strips along with an accumulation of gaseous pollutants. If the pollutant level exceeds the limit an alert will also be sent to the pollution control authority of the adjacent industry. The Nano Tree is the concept of an autonomous street light with atmospheric monitoring capability.*

Keywords: Nano Tree, Arduino board, Self-sustained street lights, Air monitoring

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