

SOCIALLY RELATED PROJECTS- ELECTRICAL AND ELECTRONICS ENGINEERING

Solar Powered Indoor Air Purifier

The main aim of the project is to develop a solar powered Indoor air purifier. Air pollution is a mixture of solid particles and gases in the air. Car emissions, chemicals from factories, dust, pollen and mould spores may be suspended as particles. Though the long-term solution to the pollution problem lies in finding and minimizing pollution sources, we need to bring the current pollution levels under control by the time. The best way of controlling pollution is by using air purifiers. So here we design an indoor air purifier that is made for indoor purification along and powered by solar panels so it is energy independent. Our solar air purifier consists of a fan that pulls air of the purifier through a layer of HEPA and Carbon filters for elimination of pollutants as well as gases. The purifier uses 2-layer purification, the first one being HEPA layer and second is active carbon filter. The combination of these 2 filters leads to dual filtration using a centrifugal air force to eliminate large amount of air and purify it of dust particles. The panel is used to supply electricity to battery which in turn powers the BLDC motor to run the fan. The fabrication of a low-cost solar-powered air-purifier made using a HEPA filter, Activated Carbon Filter, Solar Panel, and some miscellaneous components that can become a low-cost but efficient alternative for surviving in difficult times. This air purifier uses various processes like filtering large dirt particles on the first pre-filter, then capturing dust particles and smoke molecules at the HEPA-filter, and uses Carbon-filter to capture micro-particles produces clean purified air.

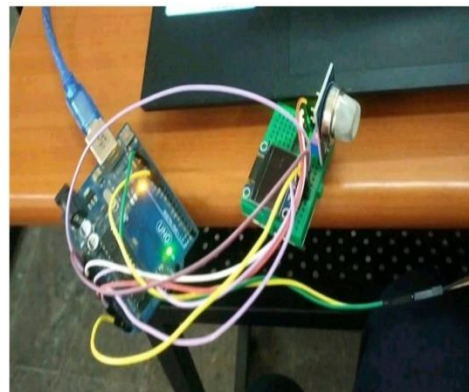


Figure: Developed model of solar powered indoor air purifier

Design and Development of IOT Surveillance System

The main aim of the project is to Design and Development of IOT Surveillance System Nowadays security of home or office is a major concern. CCTV is a closed system consisting of video cameras, display devices and wired or wireless data networks. The current CCTV system has many limitations like, it can monitor only a particular area and is very costly for personal use. This project is to enhance the CCTV camera based security systems, which presently exist in different places. This project will be designed using wireless technology. An IoT camera tracks the happenings in your home and uses your Wi-Fi network to transmit the video to your smart phone or cloud storage for the archive. You connect it to a free app that you download on your mobile. This is where you can review the footage as well as change the settings.

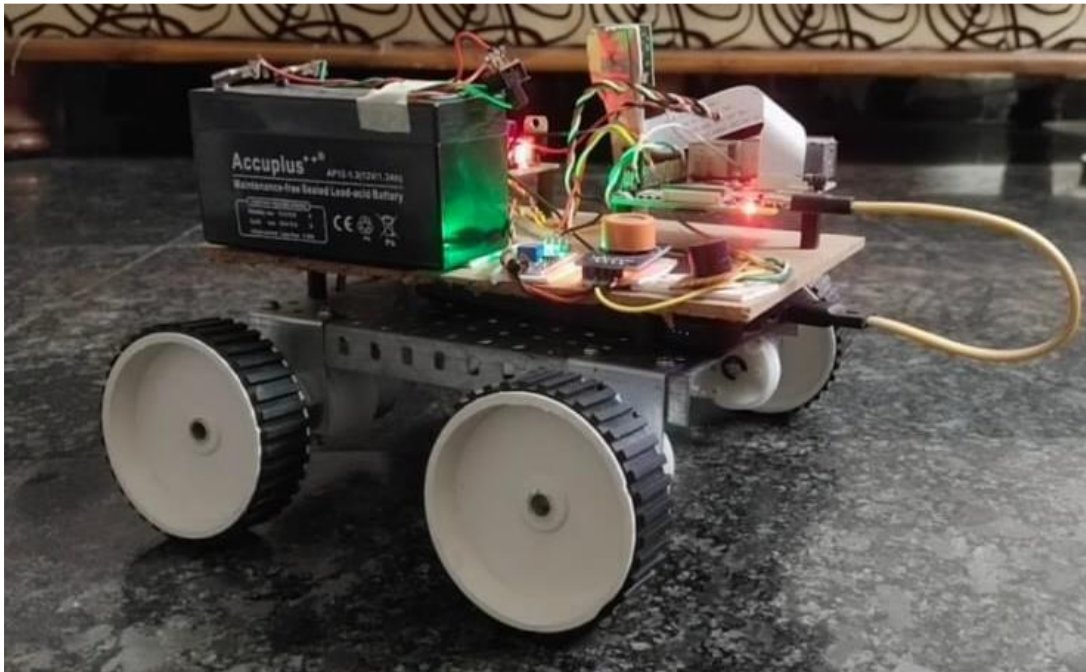


Figure: Developed model of IOT Surveillance System

Design and Development of Power Generation Model using Power Humps

The main aim of the project is to Design and Development of Power Generation Model using Power Humps. This project includes how to utilize the energy which is wasted when the vehicles passes over a power hump. Lots of energy is generated when vehicle passes over it. We can trap the energy generated and produce power by using the power hump as power generating unit. The kinetic energy of the moving vehicles can be converted into mechanical energy of the shaft through rack and pinion mechanism. Then, this mechanical energy will be converted to electrical energy using generator which will be saved with the use of a battery. The energy we save during the day light can be used in the night time for lighting street lights. Therefore, by using this arrangement we can save lot of energy which can be used for the fulfilment of future demands.

This project harvests energy from power humps by making gear arrangement and using electronic gadgets. When vehicle is in motion it produces various forms of energy due to friction between vehicles wheel and road. The principle involved is potential energy to electrical energy conversion. This is a system to generate power by converting the potential energy generated by a vehicle going up on a power hump into kinetic energy. When the vehicle moves over the inclined plates, it moves downwards. When the breaker comes down, they crank a lever fitted to a rack and pinion type mechanism which inturn converts linear motion to circular motion. The circular motion is transmitted to generator through gear arrangement. The generated power is supplied to battery inverter circuit and is fed to the load.



Figure: Developed model of Power Generation Model using Power Humps