

Solar Powered Scrap/Burr Collector

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Abstract: *The project focuses on the development and evaluation of a solar-powered burr collector for use in manufacturing operations. Burr removal is a critical process in ensuring product quality, and conventional methods often rely on energy-intensive and environmentally harmful practices. In this study, a solar-powered solution is proposed to address these challenges. This project focuses on a conceptual design of a conveyor system that can be used to differentiate between metallic and non-metallic materials, as well as to perform transferring of the mentioned materials. Also, the metallic waste will get collected using magnets & dust will get collected using the vacuum system. The project should be started by means of research on metallic waste sorting machines in the market like magnetic conveyor systems. A conveyor system is an essential mechanical equipment that moves materials from one location to another and a magnetic pulley is used by the system for separating metallic and non-metallic waste. Standard design process flow is to be followed e.g.: planning project according to objectives, designing of frame, component assembly, error detection, Fabrication. Analysis equipment has been done by doing calculations such as calculation of gear and motor torque prior to fabrication. The complete system gets operated using a battery, whereas the battery gets charged using a Solar panel. The design process involved defining the requirements and specifications for the collector, including burr collection efficiency, size constraints, and compatibility with existing machinery. A conceptual design was then developed, considering optimal positioning and orientation of the collector, as well as the integration of an effective burr removal mechanism. Photovoltaic panels were strategically placed to capture solar energy, which was stored in batteries to ensure continuous operation.*

Keywords: Conveyor, Solar Photovoltaic, Battery, Metallic Waste, Non-Metallic Waste

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