



RESEARCH ARTICLE

SMART BATTERY CHARGER FOR SOLAR-POWERED LINE FOLLOWER ROBOTIC VEHICLE

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Abstract— Searching energy sources to satisfy the world's growing demand is one of the foremost challenges for the next coming century. The seasonal movements of earth affects in the radiation intensity on solar systems. The design and construction of an efficient charging system for battery by tracked solar panels. Thus, the implementation of an energy management system applied to line follower robotic vehicle. The main proposals of the project are the implementation of a solar tracking mechanism aimed at increasing power levels in the solar panels. The robotic vehicle battery is charged by the solar panel, optimal charging circuit using the microcontroller and BFO algorithm in programming to increase the efficient for charging battery. To improve the solar tracking accuracy, a mixed solar-tracking system combines BFO (Bacterial Foraging Optimization) with PSO (Particle Swarm Optimization) algorithm is develop. Since the proposed mechanism is capable of tracking maximum light intensity.

Keywords—battery, mechatronic system, photovoltaic, line follower robotic vehicle, solar tracker, charging system

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