

# Design and Fabrication of Solar Powered Induction Cooker

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**Abstract:** Many people in the developing areas of the world struggle to cook with stoves that emit hazardous fumes and contribute to greenhouse gas emissions. Electric stoves would alleviate many of these issues, but significant barriers to adoption, most notably lack of reliable electric power, make current commercial options infeasible. However, a stove with an input power of 24V DC elegantly solves the issue of intermittent power by allowing car batteries to be used instead of a grid connection, while also allowing seamless integration with small scale solar installations and solar-based microgrids. However, we have worked on materials for the manufacturers to produce in an economical way and consumers to buy on budget whether the buyers are from rural or urban areas. This stove is the one of its kind and represents a new contribution to both the field of induction cooking and the field of clean cooking solutions for the developing world. The findings of this study demonstrate that induction cooking is not always more efficient than conventional electric (resistive) technology. The energy savings potential of induction cooking is found to be greatest when used with small cookware. The impact of these findings on standard test procedures is discussed, and recommendations for improvement are suggested. Finally, a prototype cooker design is presented, with a discussion of the limitations of current designs that prevents their operation with non-magnetic cookware.

**Keywords:** Solar, Induction, stove, battery

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