

Portable Induction Cooktop

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Abstract: *Heat comes fast on induction stoves compared to old electric or gas models because they work more directly. Yet store-bought versions tend to be too expensive while offering little room to tweak settings for lab use or mobile setups. Built around an Arduino Uno and a ZVS driver board, this version slips into backpacks yet heats pots just as well. A MAX6675 probe tracks heat levels constantly, feeding data back so adjustments happen before things get too hot. Instead of running full blast nonstop, it uses smart PWM signals with built-in lag zones to hold steady without wild swings. Tests show nearly 85 percent of energy becomes usable warmth; temp stays within one degree of target most times. Power draw stays low enough that solar panels could run it where grids don't reach. Input happens through a basic key grid, output scrolls across a small screen linked by I2C wires. Early field trials are planned with eco groups placing units in remote homes far from power lines. With common parts and public code, solid results emerge - kitchen-grade heat now fits budgets once reserved for hobby circuits*

Keywords: Arduino Uno, ZVS Induction Module, PWM Control, Feedback Loop, Embedded Systems, Thermal Efficiency, Green Technology

