

**DESIGN, FABRICATION, AND TESTING OF OFF-GRID SOLAR-POWERED SMART
MILK HEATER SYSTEM FOR A SMALL-SCALE DAIRY GOAT FARM IN
BRGY. BINANGKILAN, STA. BARBARA, ILOILO**

Project Study Report

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of the Requirements for the Degree

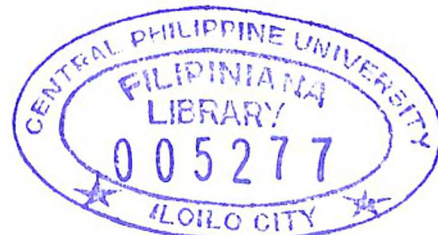
Bachelor of Science in Electrical Engineering

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Abstract

This research paper presents the design, fabrication, and testing of an innovative Off-grid Solar-powered Smart Milk Heater System tailored to the specific needs of a small-scale dairy goat farm located in Brgy. Binangkilan, Sta. Barbara, Iloilo. The study identified critical challenges within the traditional milk heating process, including the unreliable temperature control, lack of precise milk quantity measurement, and recurring expenses associated with gas consumption. To address these issues, the research team developed and implemented a solar-powered milk heater system.

The Off-grid Solar-powered Smart Milk Heater System effectively overcomes these challenges through careful design and rigorous testing. It ensures precise temperature control, minimizing milk temperature uncertainty with accurate readings. It also optimizes milk quantity, reducing waste, and lowers operational costs through solar power integration. This innovation enhances milk preparation on small goat farms, improving efficiency and sustainability, showcasing the potential for tech-driven agricultural advancements, cost reduction, and increased efficiency in the region's small-scale dairy goat farming.