

VISVESVARAYA TECHNOLOGICAL UNIVERSITY
SANTHIBASTAWAD ROAD, MACHHE, BELGAUM – 590014
KARNATAKA.



A Project Report On

“DESIGN AND FABRICATION OF 2 IN 1 GAS STOVE”

*(Sponsored by Karnataka State Council for Science and Technology,
IISc, Bangalore)*

*Project report submitted in partial fulfillment of the requirements for the award of
Degree of Bachelor of Engineering
In*

MECHANICAL ENGINEERING

Submitted by:

HASEEB ULLA KHAN SHIRANI
SYED HAROON ALBADRI
DADA HAYATH KHALANDAR SHARIFF
NAVEEN ASHISH.T

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Under the guidance of

Mr.GIRISHA.C

M.E

Lecturer, Dept of Mechanical SSIT, Tumkur



DEPARTMENT OF MECHANICAL ENGINEERING
SRI SIDDHARTHA INSTITUTE OF TECHNOLOGY

Maralur, Tumkur-572105

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ABSTRACT

In the present scenario, the conventional fuels are depleting day by day, resulting in increase in the rate of fuel in the multinational market. This situation needs a technology for effective utilization of the fuel or modifying the existing technology, for the effective utilization of the fuel. In cities almost all house have stoves run by utilizing LPG as the fuel, i.e. utilizing liquid petroleum gas for cooking. It is well known fact that only 40% - 50% of the heat generated by the combustion of LPG is utilized for cooking purpose, remaining percentage of heat is a loss. The objective of this project aims at developing a Two-in-One Stove which utilizes the heat generated by the LPG stove to the maximum level.

A two in one stove is designed and fabricated in this project. For the commercially available Gas stove, water tubes of diameter 8mm (Set I) and 4 mm (Set II) made up of copper, are placed around the gas burner at different positions. Through the water tubes water is made to pass, during cooking the water flowing through the coils absorb some amount of heat from the ignited LPG and gets heated up thus obtaining optimum heat utilization. The hot water obtained can be used for other purposes.

In working, one end of the coil is connected to the water tap and the other end is placed in the water collector, Water is passed through the coils, the water when it passes around the burner when the gas stove is on, it absorbs some amount of heat. The testing of the experimental set up was conducted by using the copper coils of diameters 8mm and 4mm for different valve openings and the results are tabulated.

Ultimately it was found that by attaching the copper coils and passing the water through that the overall efficiency of the stove has improved, i.e. during the cooking process sufficient amount of hot water is obtained. The efficiency of the Two-in-One Stove gas stove calculated by the results obtained under different circumstances was found to be ranging from 50% - 55%, where as the efficiency of the normal gas stoves without any attachment ranges from 40% - 45%. An overall increase of efficiency in the range of 10% - 15% was observed.