VISVESVARAYA TECHNOLOGICAL UNIVERSITY

BELGAUM

Project Work On

A NOVEL REFRIGERATOR WITH COLD AND HOT WATER FACILITY

Submitted in partial fulfillment for the award of the degree in

Bachelor of Engineering in
MECHANICAL ENGINEERING

By

ANUPAM PANDIT **(1NC06ME003)**
ASHUTOSH PUSKAR **(1NC06ME006)**
MD.MUDASSIR ALAM **(INC06ME017)**

Under the guidance of

Prof.N.Kapilan,B.E.,M.Tech,(Ph.D)

Department of Mechanical Engineering

Nagarjuna College of Engineering and Technology

DEPARTMENT OF MECHANICAL ENGINEERING
NAGARJUNA COLLEGE OF ENGINEERING AND TECHNOLOGY
VENKATAGIRIKOTE, DEVANAHALLI, BENGALURU– 562 110

ABSTRACT

A domestic refrigerator available in the market does not have cold and warm water facility and users generally depends on water dispenser for the same. This cause additional investment and waste of electrical power. Hence in this project, a novel idea was developed to develop a retrofitting to provide hot and cold water facility in the domestic refrigerator.

A small water bottle of two litre capacity is provided in the cooling compartment of the refrigerator and water tap is provided outside. When the refrigerator is working, the water is cooled by the refrigerator. When the cold water is required, it is taken out of the refrigerator through the tap provided in the front door of the refrigerator. This serve the purpose of cold water supply and capacity of the water bottle can be increased depending upon the user requirements.

For warm or hot water requirement, the following method was used. When the refrigerator is in working condition, the temperature of the condenser coil of the refrigerator will be around 60^0C. This heat energy is rejected to the surrounding and not used for other useful applications. In this work, an additional copper coil is tied with the condenser coil and this coil absorbs the heat from the condenser coil. Also this facility increases the condensing rate of the refrigerant vapour. Whenever warm water is required, the water is allowed to pass through the copper coil which is tied to the condenser coil. When the water flows through the copper coil, it takes the heat of the condenser coil and becomes warm water. An additional electric heater is provided to get hot water above 60^0C.

The performance of the refrigerator is not affected by the cooling or hot water arrangement.