

**VISVESHVARAYA TECHNOLOGICAL UNIVERSITY
BELGAUM, KARNATAKA-590 014**



A Project Report on

“MULTI DISH PLATES WASHING MACHINE”

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fulfillment of requirement for the award of degree

BACHELOR OF ENGINEERING

IN

MECHANICAL ENGINEERING

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ABSTRACT

Plate washing is a daily activity across the globe which involves a lot of energy to accomplish manually or mechanically. The objective of this work is to design and fabricate a dish washing machine that is efficient and easy to operate. Stainless steel and mild steel was used for the construction of the machine considering their availability, cost reduction and corrosion resistance. The motor used a power of 1/2 Hp, voltage of 240V and a speed of rotation of 960 r.p.m which was reduced to 16 r.p.m using a reduction gear of velocity ratio (V.R) 1:60, the shaft torque being 333.92 N-m.

The plates were washed and rinsed in a octagonal shape stand using a liquid detergent and clean water following appropriate measure per cycle. Detailed design drawings of all the machine parts were drawn using solid edge. The performance analysis of the machine shows that the number of plates washed and the time taken were 24 plates per minute (1min), 8 plates per minute for the machine and manual operation respectively. The capacity of the machine is 24 plates per minute. The machine washes plates without breakages.

Comparison studies do not address costs associated with the manufacture and disposal of dishwashers, the cost of possible accelerated wear of dishes from the chemical harshness of dishwasher detergent. On the other hand, studies do not include the value of labor saved when dishes are washed in the machine. Dishwashers may have more negative impact on environment than hand-washing. Efficiency of dishwashers is largely based on powerful chemistry of detergents used in them. Most dishwasher detergent contains complex phosphates, as they have several properties that aid in effective cleaning. However, the same chemicals have been removed from laundry detergents in many countries as a result of environmental concerns.

Key words: Washing machine, motor, reduction gear, plates and detergent.