

## **FABRICATION REMOTE OPERATED DRILL MACHINE (HYBRID) – SOLAR AND WIND**

### **ABSTRACT**

The real power required for machine equipment depends on the resistance to the movement of it. Some of these resistances are the wind resistance, the rolling resistance and the gradient resistance.

Even now, in 98% of the contemporary machines that run, this power for movement is provided by the burning of fossil fuels in the IC engines or the external combustion engines. This, as evident, has led to widespread air, water and noise pollution and most importantly has led to a realistic energy crisis in the near future.

The main aim for our project has been to develop a remote operated drill machine, which is solar and wind powered. In this machine we use a solar panel and horizontal wind turbine to capture and convert solar and wind energy into electrical energy which in turn is used to charge four 12V batteries, which then gives the necessary power to a shunt wound DC motor. Consequently, in this project an attempt is made to make the electric and mechanical systems share their powers in an efficient way.

Thus taking into consideration the ever increasing pollution levels and the stringent pollution norms (EURO-II and onwards) set up by the POLLUTION CONTROL BOARDS, and since the fossil fuels are depleting, probably may last within the decades to come or earlier, and to reduce the running cost of the drill machine, we are in an attempt to incorporate the above mentioned features in our drill machine.

## MECHANISM

Drilling Machine is very simple machine. Job or work piece is fixed on work table. Tool rotating at high speed, is fed into work piece for operation.

We use the power or electricity generated by solar panel and wind turbine to operate the machine. The solar energy is directly connected to the battery for power generation and the wind turbine is coupled with stepper motor, when the wind mill rotates the stepper motor coupled to this will start rotating in clock wise or in anti clockwise . When the stepper motor rotates, the kinetic energy is converted into electrical energy and the generated power is stored in battery. The prototype fabrication consist of drill machine which is connected to DC motor , drill machine can be moved up and down using remote . This system provides the safety and accurately, as operated. The remote operated drilling machine comes to the target a position has required.

## USES

A drilling machine, called a drill press, is used to cut holes into or through metal, wood, or other materials .Drilling machines use a drilling tool that has cutting edges at its point. This cutting tool is held in the drill press by a chuck or Morse taper and is rotated and fed into the work at variable speeds. Drilling machines may be used to perform other operations. They can perform countersinking, boring, counter boring, spot facing, reaming, and tapping .Drill press operators must know how to set up the work, set speed and feed, and provide for coolant to get an acceptable finished product. The size or capacity of the drilling machine is usually determined by the largest piece of stock that can be center-drilled .

Other ways to determine the size of the drill press are by the largest hole that can be drilled, the distance between the spindle and column, and the vertical distance between the worktable and spindle.

## **SAFETY PRECAUTIONS:**

- Do not support the workpieces by hand.
- Never make any adjustments while the machine is operating. Drilling machines are one of the most dangerous hand operated pieces of equipment in the shop area. Following
- Never clean away chips with your hand. Use a brush. safety procedures during drilling operations will help eliminate accidents, loss of time, and materials.
- Keep all loose clothing away from turning tools.
- Make sure that the cutting tools are running straight before starting the operation.
- Never place tools or equipment on the drilling tables.
- Keep all guards in place while operating
- Ease up on the feed as the drill breaks through the work
- to avoid damaged tools or workpieces.
- Remove all chuck keys and wrenches before operating
- Always wear eye protection while operating any drilling machine

## ADVANTAGES

- Uses renewable energy sources.
- To achieve mass production
- To reduce man power
- To increase the efficiency of the plant
- To reduce the work load
- To reduce the production cost
- To reduce the production time
- To reduce the material handling
- To reduce the fatigue of workers
- To achieve good product quality
- Less Maintenance