

# REMOTE CONTROLLED SCREW JACK

## ABSTRACT:

The remote controlled screw jack is a modified form of conventional screw jack that helps to lift the load using motor as a source of energy and gear box to control the lift of the jack. In this project we aim for the following:

- Arrange & modify the conventional cylindrical lifting jack by putting extra ring in the center to grip the v belt assembly.
- Controlling the jack remotely
- To arrange & modify the 12V big D.C. Motor by adding 'v belt' pulley at the output shaft.
- To construct an angle iron based structure to hold the entire assembly.
- To design & construct a 5Amp dc power supply to run the project assembly.

## INTRODUCTION:

An electrically operated screw-type jack comprising a support base, a housing, a jack body, a lifting ram which is contained in the jack body, a servo motor which is contained in the housing, reduction gears for transmitting the driving power of the servo motor to the lifting ram, a safety device prevent the motor and the power transmitting mechanism from an abrupt

failure due to overloading , and a square head pin for conventional hand operation of the jack when the jack is overloaded. The safety device consists of a clutch disk, a clutch spring and a sleeve. The reduction gears consist of first sun and planet gears, second sun and planet gears and a sun gear cylinder.

The remote is used for control the jack from distance.in case of heavy object the jack can be operated remotely.no need to control manually, this project reduces the accident.

## **WORKING PRINCIPAL**

A screw jack or a Jackscrew is operated by turning a lead screw. The height of the jack is adjusted by turning the lead screw. This can be done either manually or by integrating an electric motor with it. This integration is our project.

The components of the jack are:

- support base.
- jack body mounted on support base
- housing mounted on jack body, having a flange formed at a middle portion.

-servo motor having a driving gear mounted to a lower end .The servo motor is contained in the housing.

-lifting ram vertically mounted on the support base.

-driven gear and a driven pinion mounted on the support base.

The pinions are engaged into each other.

-Reduction gears having first sun and planet gears including first planet gears and a center gear, second sun and planet gears including second planetary gears and a driving pinion, a sun gear cylinder housing.

-safety device mounted under the reduction gears, which has a clutch disk on which there are fitting recesses.

-clutch spring resiliently supporting the clutch disk in engagement with

-sleeve mounted detachably to the flange of the housing by bolts.

the lower end of sun gear cylinder.

Pistons may be required for transmission from motor to main shaft.

## **APPLICATIONS:**

The jack can be operated remotely

Can be used by physically handicap persons to lift car or other things

Can be used in workshop or by personal use

## **ADVANTAGES:**

No need of human effort

Jack can controlled both remotely as well as manually

Heavy things can lift easily

## **DISADVANTAGES:**

Power is needed

**BLOCK DIAGRAM:**



