

Department : **Mechanical**

Year : **2019-2020**

Group No: **1**

Guided By

**PROF.
HARSHADKUMAR
PATEL**

SMT. S. R. PATEL ENGINEERING COLLEGE, UNJHA

Project Title

DESIGN, MODELLING AND DEVELOPMENT OF POWER REAPER MACHINE

Abstract:

Now a day's farmer uses basic equipment for reaping, stacking, handling, threshing, cleaning, and hauling in harvesting of the crops. Medium scale farmer use sickle for harvesting, rope for binding of the crops like rice wheat etc. these are the most affordable but time consuming and require more man power.

The most common harvesting system was to cut crops using sickle, and make a bundle with rope and then carry the bundle by balancing it on one's head, although some farmers use bamboo/wooden stick to carry the bundle upon their shoulders. Process of the crops farming is crop selection, land preparation, seed sowing, irrigation, crop growth, fertilising, harvesting respectively. Is some of this process farmer cannot use automation or machinery for reduce work and save the time but in the harvesting process use machinery is the more economical and time consuming. Mechanised harvesting very flexible compare to the manual harvesting.

Research methodology consists of series of actions or steps necessary to effectively carry out research and the desired sequencing of these steps. Identify Statement of the problems, Studying the present design of the reaper machine, Review the literature, Product development generic design process steps for reaper harvesters machine, planning, concept development, system-level design, detail design, testing and refinement and product ramp-up, in this step it's define the material properties according to the design. to model the reaper machine by using CREO software, Prototype development, testing for validation and Interpret and report.

Material are selected on the basis of strength requirement of various components of the Reaper machine. The machine is constructed from locally available materials. This self-propelled reaper is operated at forward speed of 2.54 m/s. It has 120 cm size of cutter bar and dropped bundling mechanism. The field capacity 0.306 ha/hr, respectively. The required labour for harvesting one hectare of wheat and rice reaper harvesting field operation are needs 2 man-hr/ha. The quantity of fuel required to fill the tank fully after harvesting the plot was measured to determine the quantity of fuel consumed for reaping the test plot and fuel consumption 1.17 l/h.

Prepared By:

Sr. No.	Student Name	Enrollment No
1	PATEL SAGAR BHARATKUMAR	160780119030
2	PARMAR HARSH HASMUKHBHAI	160780119016
3	MEVADA HARDIKKUMAR RAMANLAL	160780119010
4	PATEL RUTVIJ AMRUTBHAI	160780119029
5	SUTHAR MIHEER NARENDRAKUMAR	160780119048

