

“A PORTABLE ATTACHMENT FOR FEEDING IN CONVENTIONAL THRESHER (I.D.P)”



GROUP NO. 21

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PROJECT OUTLINES

- ❖ Introduction
- ❖ Literature Reviews
- ❖ Concept Of Project (Rough Drawing)
- ❖ Feeding Attachment
- ❖ Drawing of All Parts in CREO 2.0
- ❖ Methodology
- ❖ Conclusion
- ❖ References



INTRODUCTION

Project background :-

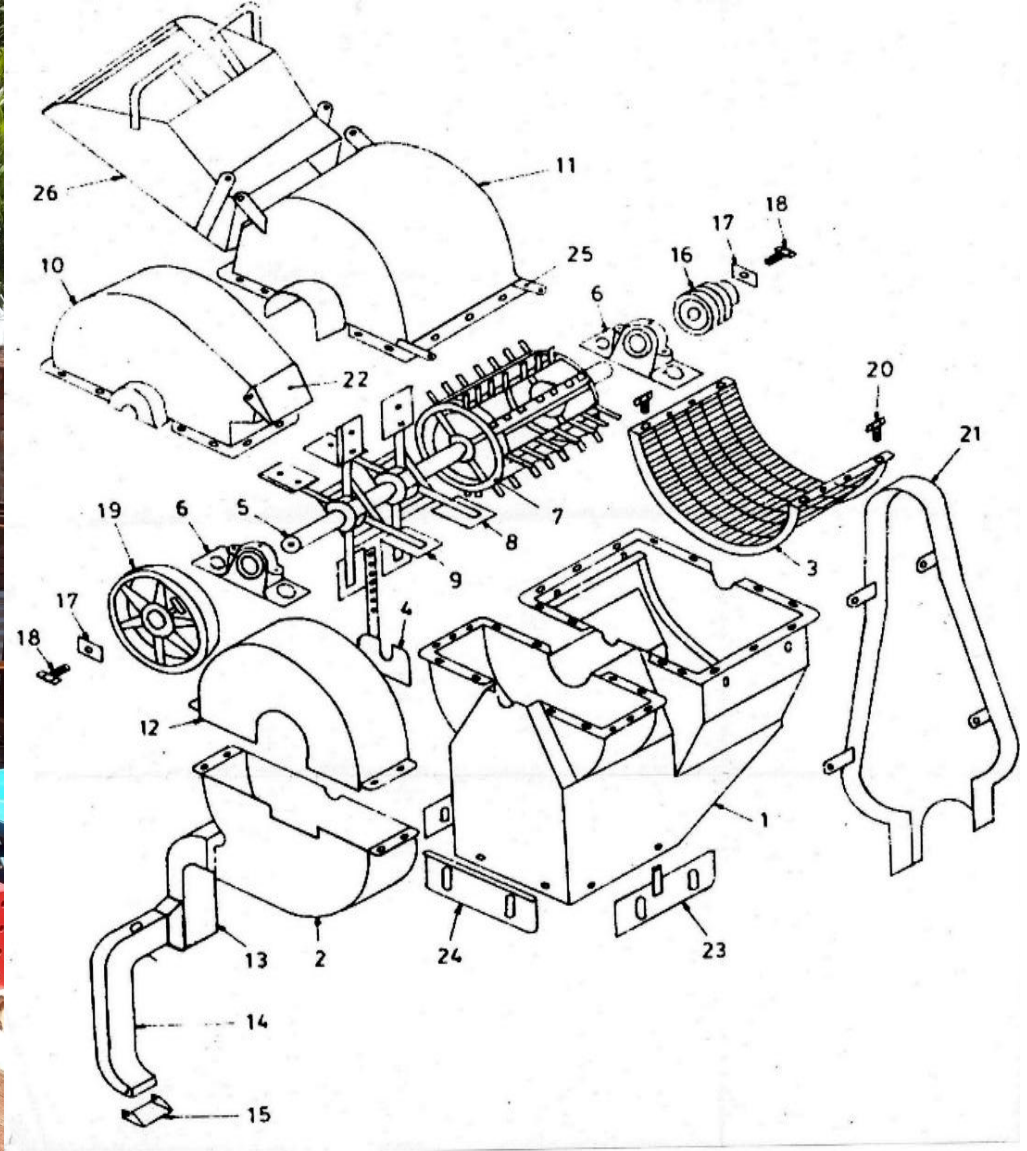
Thresher is a machine for separating seeds from the ears, tassels, heads, and cobs of agricultural plants. After inspired from feeding system of harvester we choose the project statement.

Modification Purpose :-

- 1) Safety
- 2) Worker Replacement

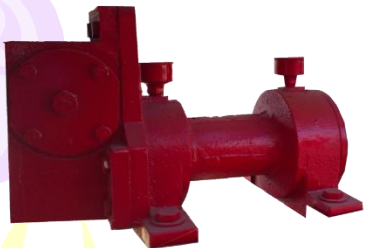
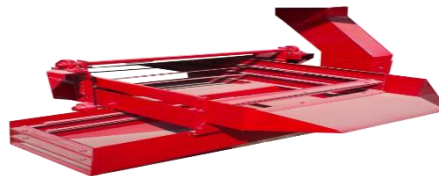
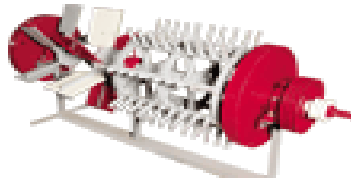
In this project, first we gather all information of feeding system used in Thresher and then Modify feeding system by concept of Automation in feeding.

CONVENTIONAL THRESHER



Main Function Of Thresher & It's Parts :-

- ❖ **Chaffer** – For feeding of raw material of crops.
- ❖ **Drum** – For cutting ears, tassels, heads, and cobs of agricultural plants.
- ❖ **Cob Blower** – For discharging of cobs of plants.
- ❖ **Air Blower** – For discharging of light impurities.
- ❖ **Gear Box** – For Power transmission to Oscillates the Threshing sieve
- ❖ **sieve** – For separating seeds





Main Problems Of Feeding In Thresher :-

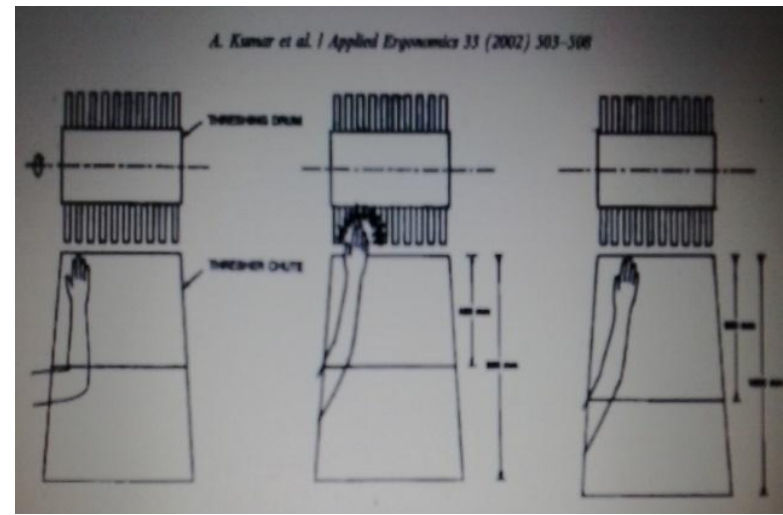
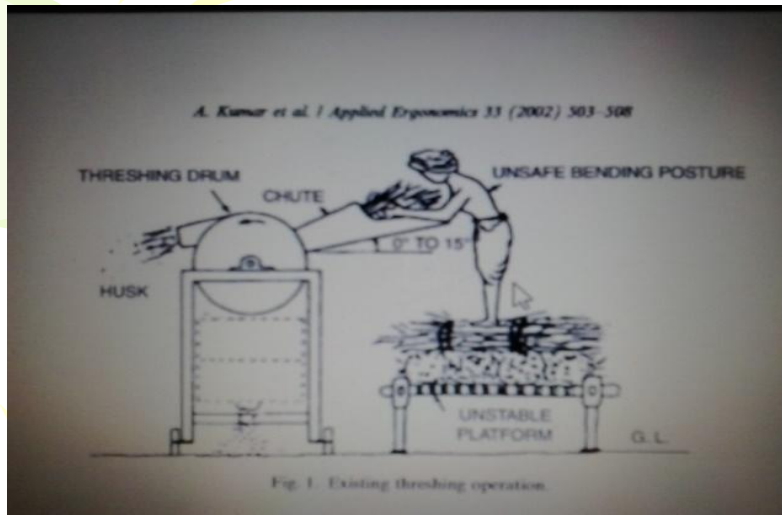
- ❖ Accident during feeding process.
- ❖ Working process depend on the man power.
- ❖ Time consumption during manual feeding process is very high.

Project Objective :-

- ❖ To reduce the accident compare of the manual feeding process.
- ❖ To reduce the man effort.
- ❖ To reduce the time consumption.
- ❖ To improve safety of labour.
- ❖ To insert automation in feeding system.

LITERATURE REVIEWS

- ❖ **Mr. Adarsh Kumar et al.** investigates that Development of grain threshers based on ergonomic design criteria. Threshers are used extensively on Indian farms for threshing grains, but are involved in a significant proportion of limb crush injuries. International safety standards are somewhat difficult to enforce because manufacture of machines is done at widely dispersed local workshops. Locally made machines are used for crop production and post-harvesting operations, with a great deal of manual work. This technical note reports the results of a study to develop a cost effective, improved design for safe operation of threshers based on ergonomic principles. Thresher injuries result in crush/amputations of upper limbs. Chute design has an important bearing on injuries. Increased chute heights and chute cover lengths are recommended for safer operation. Design modifications of the chute and a height difference of platform and chute can reduce the possibility of injury among thresher operators.



- ❖ **Mr. A.C. Ukatu** investigates that A Modified Threshing Unit for Soya Beans Soya bean is an economically important crop, which serves as a source of good quality protein for animals and humans. The threshing unit plays a key role in determining the performance of a combine harvester. UACES reported that in many tooth-peg threshers grain damage was as high as about 4% and recommended a speed range of 600–750 min⁻¹ for soya beans, depending on the crop moisture content. Drum and concave threshing system which handle the whole crop plant mass have proved favorable in previous research. Such a system was considered in the present work.

❖ **Mr. Charles Gunnar Birger et al** investigates that chain conveyor, comprising at least one endless transport chain arranged for continual operation, characterized in that movable means in the form of endless smaller chains, so called store chains, are mounted on the transport chain being arranged to support the articles being conveyed so that said articles can be moved relative to the conveyor in its longitudinal direction, a stopping member being provided above the conveyor so that it can be placed in the way of the articles being conveyed, the articles when thus stopped being collected at the stopping member while the transport chain continues moving.

❖ **Mr. Raymond G. Bartkowiak** investigates that an object of this invention is to construct a link for a harvesting conveyor. Still another object of the invention is to produce a bushing constructed of a lubricous material that can be inserted between the contacting areas of adjacent links of a harvester conveyor belt to increase the life of the links of the conveyor which can be replaced when worn in a manner of minutes to prevent excessive down time of the harvester. Yet another object of the invention is to reduce the fuel consumption of the farm equipment which operates the harvester conveyor due to the lighter weight of the chain conveyor.

❖ **Mr. Gerhard Hamann et al** investigates that provided a combine harvester for agricultural crops and having a cutting mechanism, a threshing mechanism, a conveyor for transferring crop material from the cutting mechanism to the threshing mechanism and a plurality of raking pins mounted on the conveying chains for precluding the accumulation of crop material in the region of the upper rear terminus of the conveying chains. In a combine harvester for agricultural crops and having a cutting mechanism, a threshing mechanism, a conveyor for transferring crop material from the cutting mechanism to the threshing mechanism, and the conveyor including a plurality of conveying chains entrained over sprockets and conveying bars connected to and extending between the conveying chains.

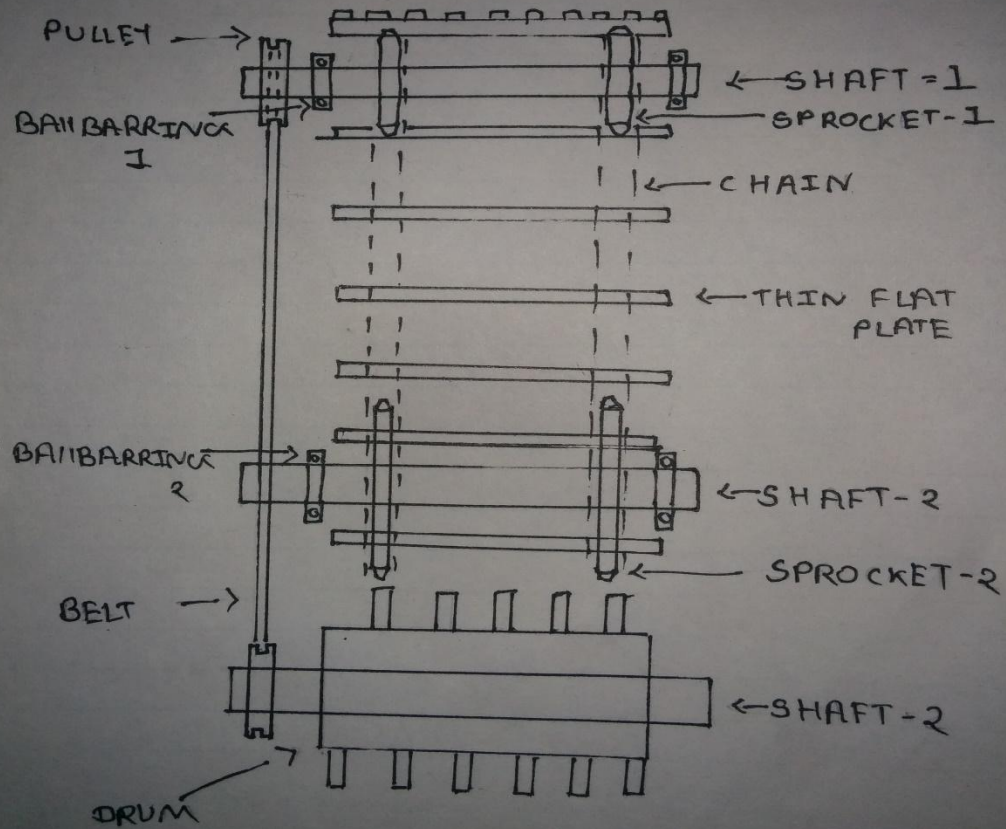
❖ **Mr. Clarence L. Bandy et al** investigates that primary object of the present invention to provide a reversible sprocket assembly for a chain and sprocket drive system overcoming the above described limitations and disadvantages of the prior art. Advantageously, reversibility is attained without utilizing any component fasteners as in prior art designs that are subjected to force and stress concentration during equipment operation. Yet another object of the present invention is to provide a reversible sprocket assembly of relatively simple and inexpensive construction providing reliable and dependable performance over an extended service life.

❖ **Mr. Allan R. Wurtele et al** investigates that one of the objects of the present invention is to provide mechanical harvesting means of the above type wherein novel means are employed for conveying and elevating cane stalks, or the like, in a relatively upright position. A further object is to provide conveying and elevating means which are so constructed as to grip elongated stalks of plants in a novel manner whereby the same may be moved laterally and upwardly in a relatively upright position. A further object is to provide novel conveying means for plant stalks which are simple in construction and operation and yet durable and efficient.

❖ **Mr. Gary L. Bich et al** investigates that directed to a forage harvester row crop attachment having a plurality of row crop divider units arranged side-by-side on a base frame to define a plurality of crop conveying paths. A pair of gathering chains are arranged to pass through each of the crop conveying paths from an entrance to an exit thereof for conveying crop material rearwardly through the crop conveying path. Each gathering chain is wrapped around a drive sprocket and an idler sprocket. It is an object of the present invention to provide a gathering chain adjustment mechanism for forage harvester row crop attachments which may be operated using only one wrench

Concept Of Project

A PORTABLE ATTACHMENT FOR FEEDING.

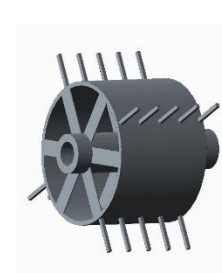
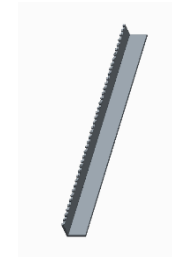


FEEDING ATTACHMENT

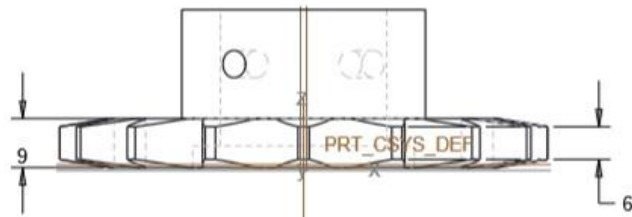
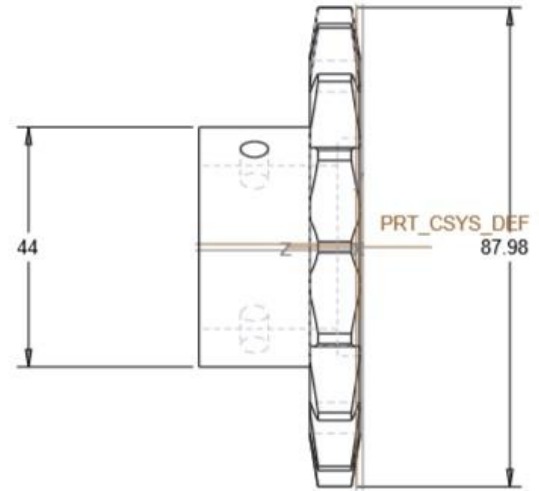
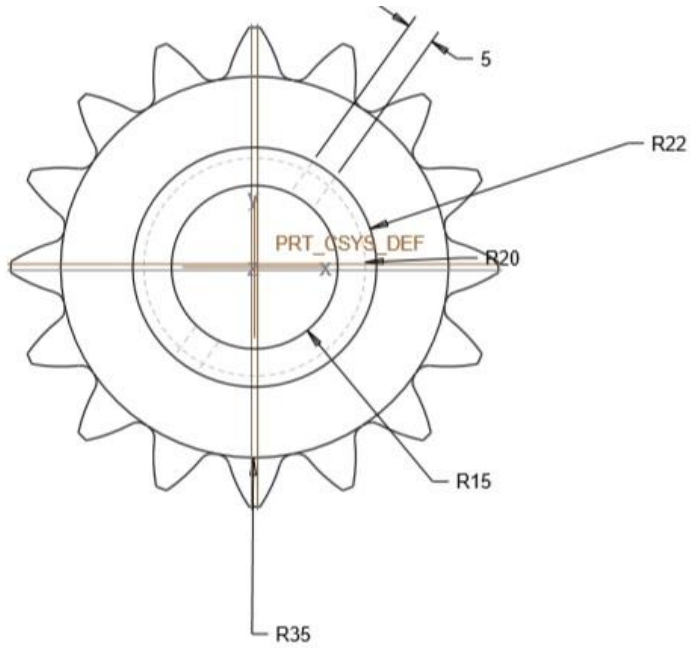
Our feeding attachment is useful as a portable attachment for feeding in conventional thresher. It is a one type of small conveyor system. It's look like a chain conveyor system. Concept is inspiring from a chain conveyor mechanism of the harvesting machine. The attachment is directly fitted to the threshing chaffer. So the crops directly transferred from lower level to the threshing chaffer.

All Parts of an attachment

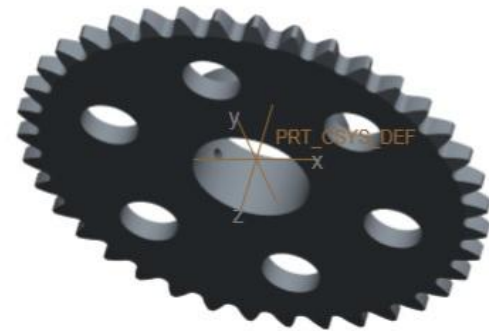
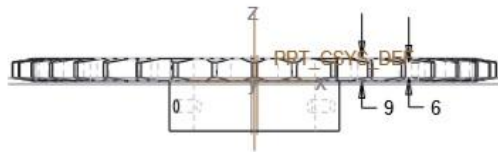
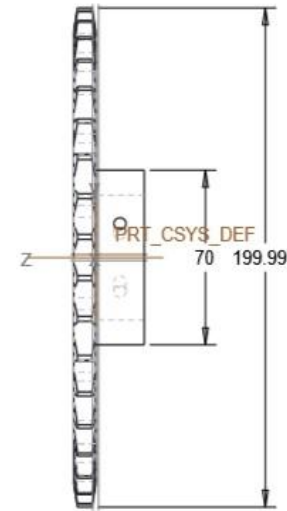
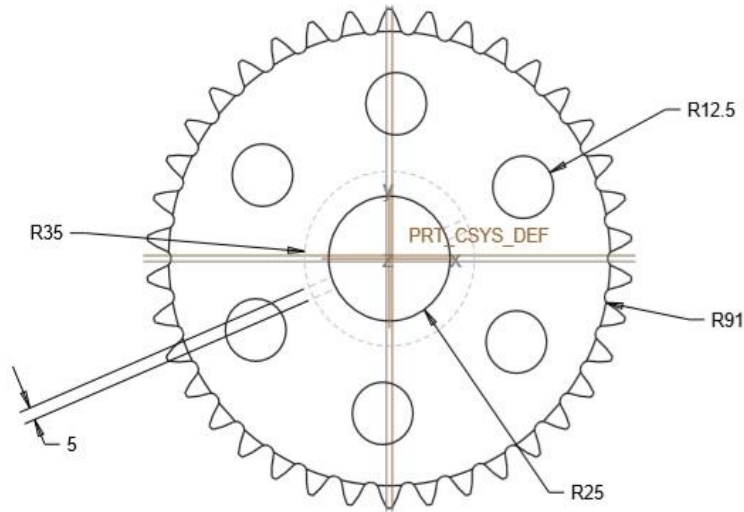
- ❖ Chain
- ❖ Sprocket
- ❖ Shaft
- ❖ Ball barring
- ❖ L- Angle plate
- ❖ Feeder
- ❖ Casing



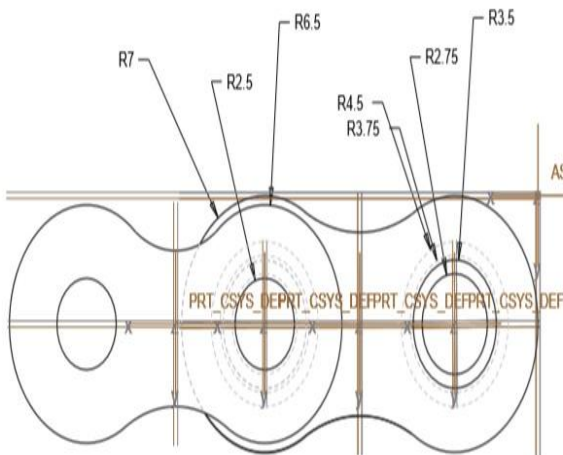
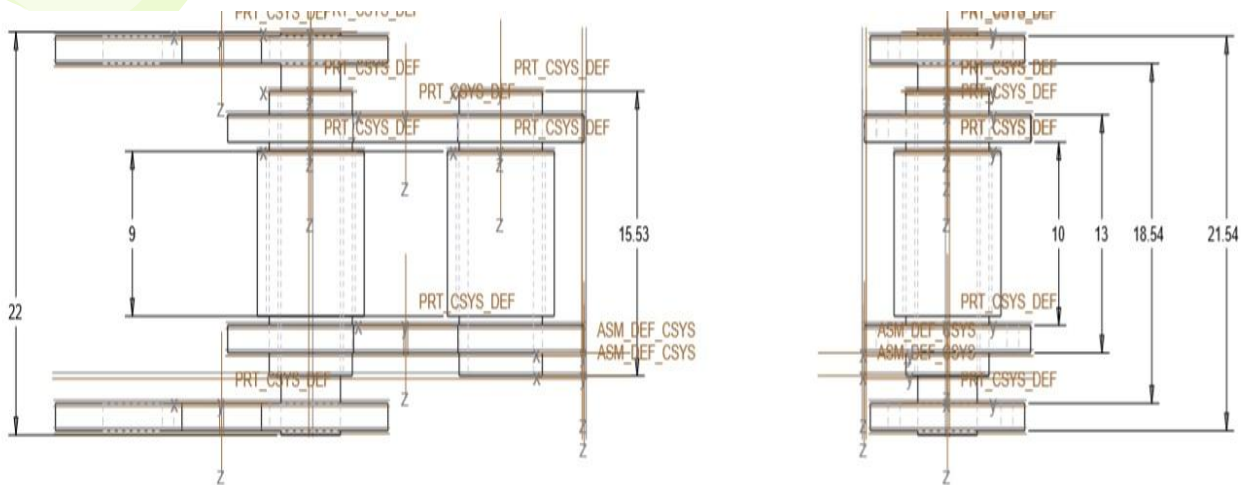
Small Sprocket



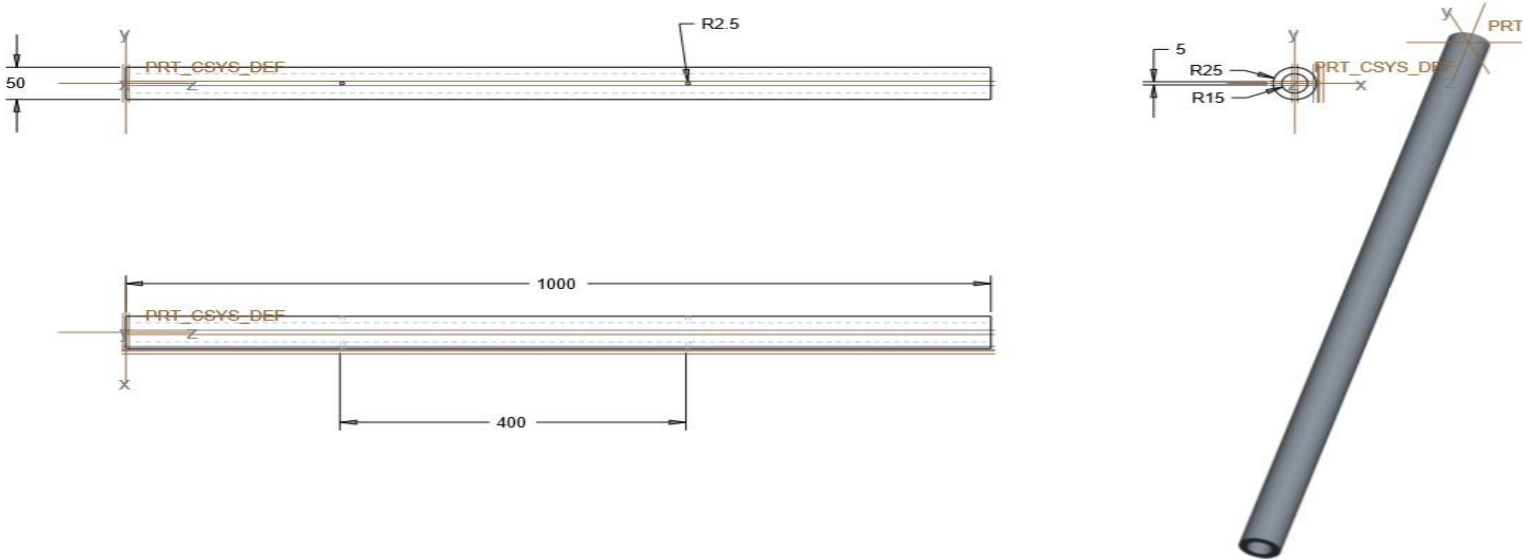
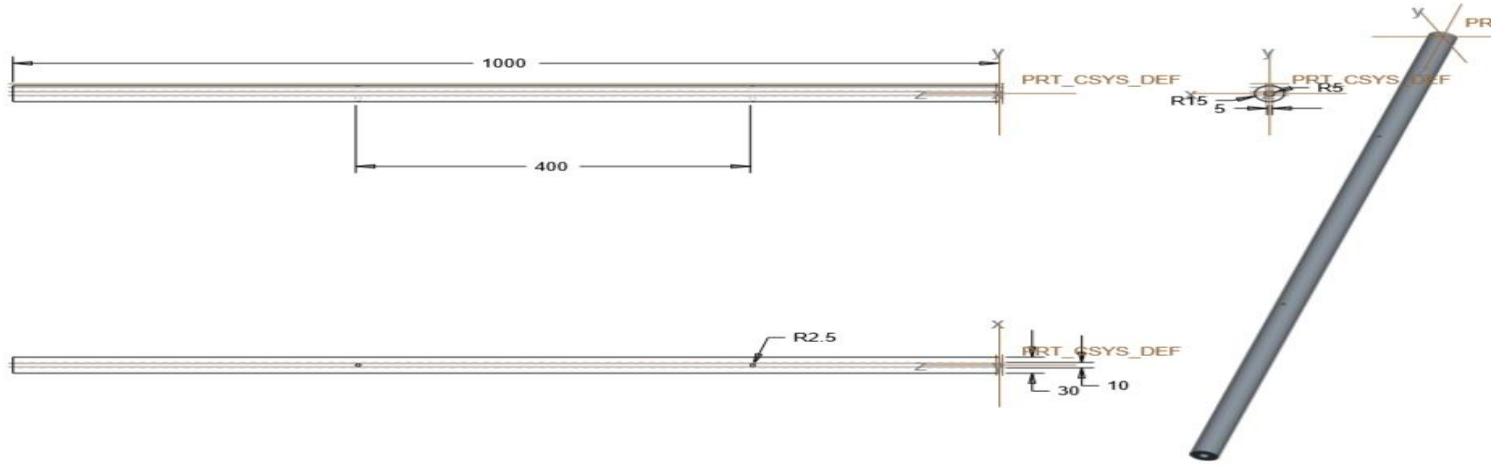
Big Sprocket



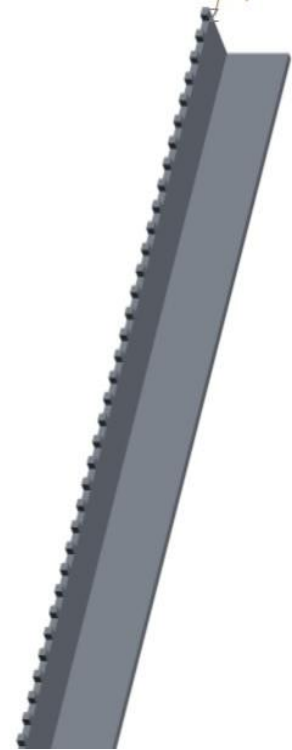
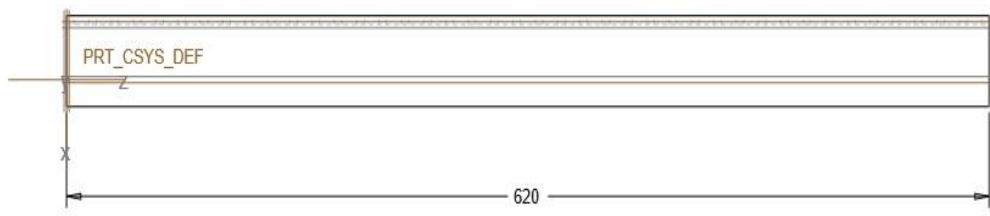
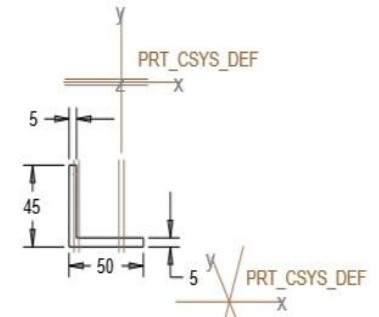
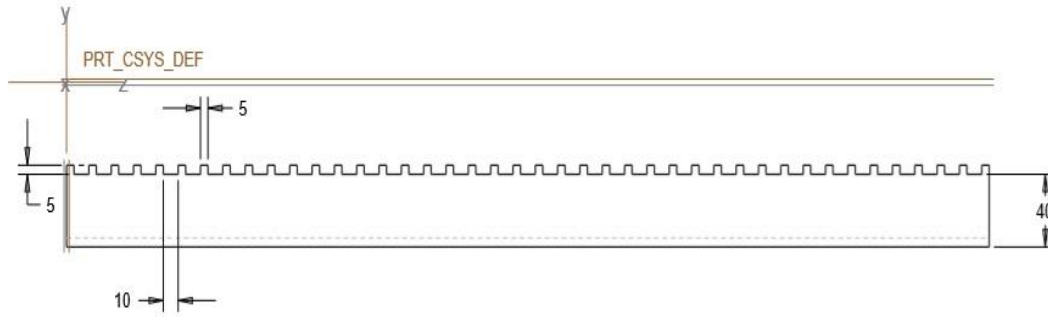
Chain



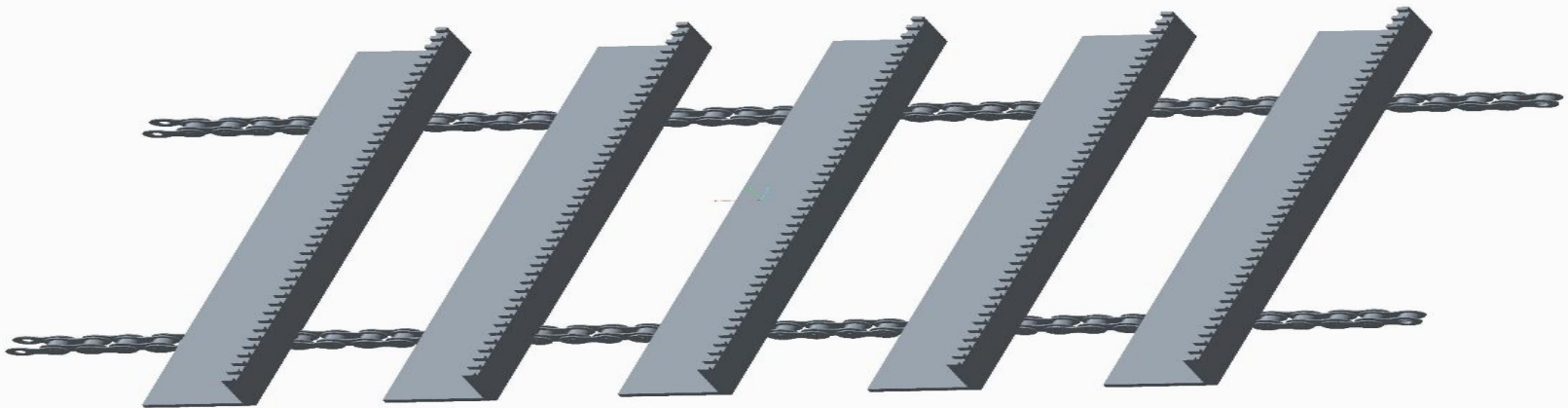
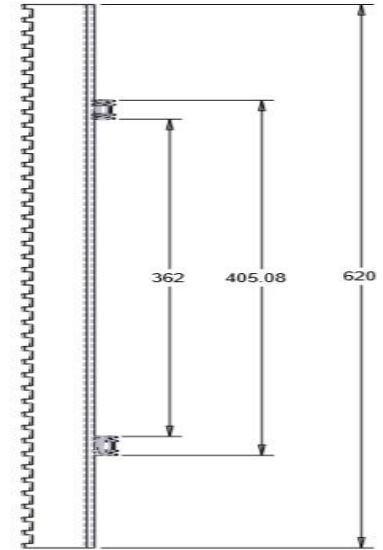
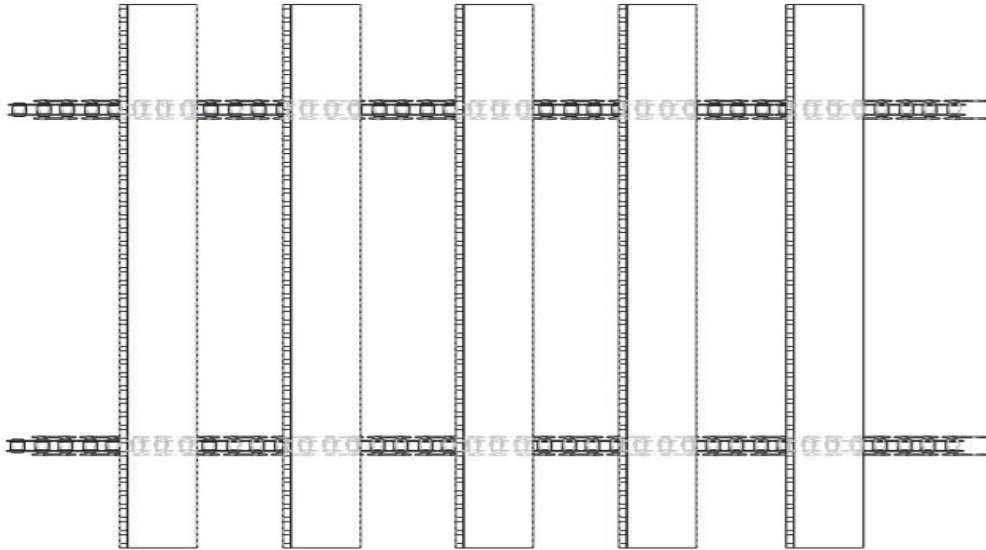
Shafts



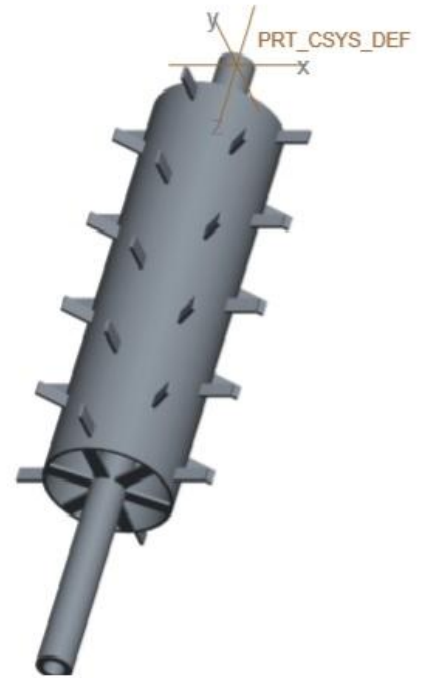
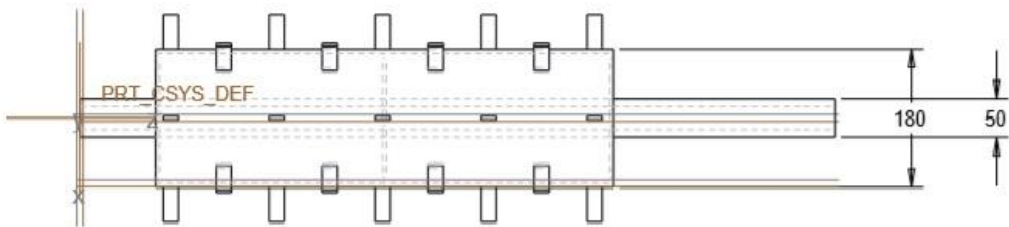
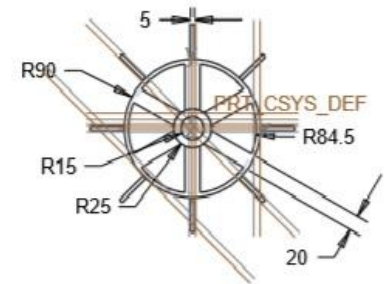
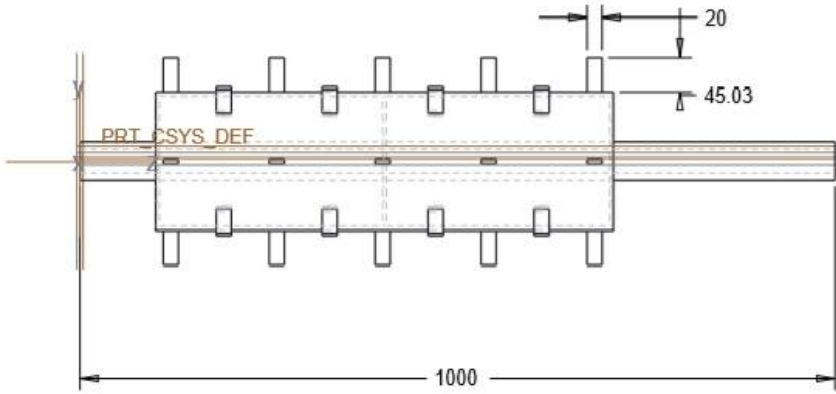
L- angle plate



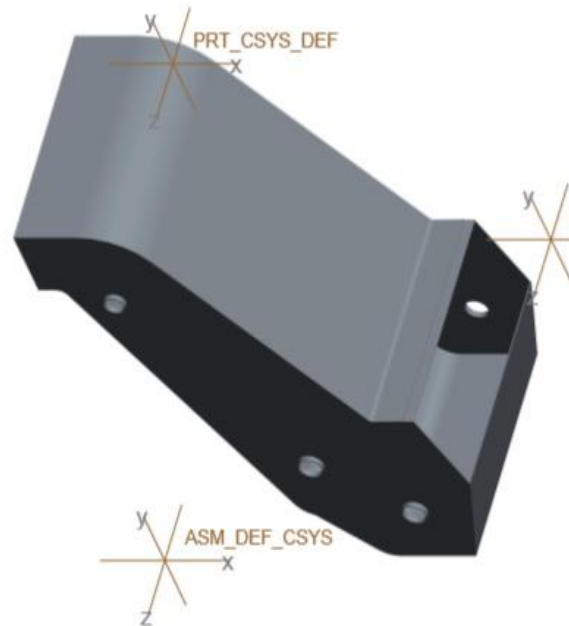
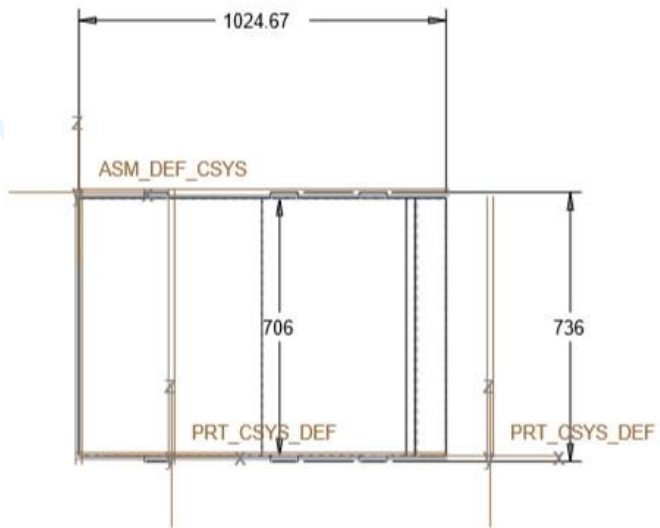
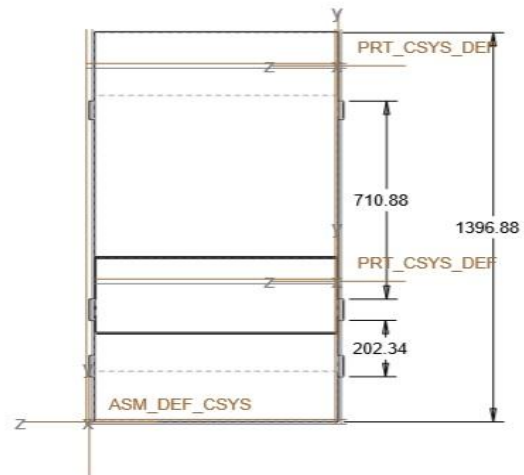
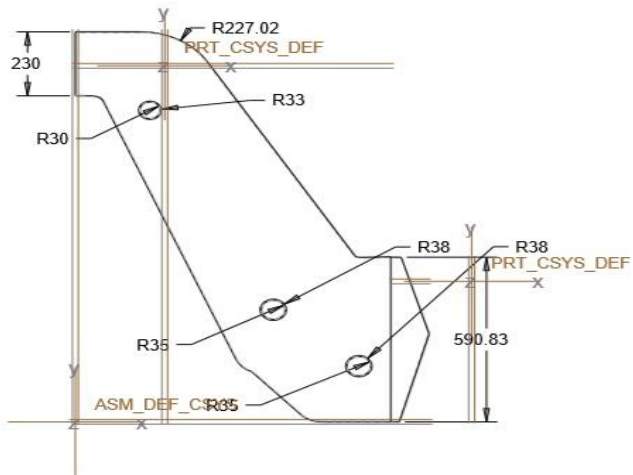
Conveyor



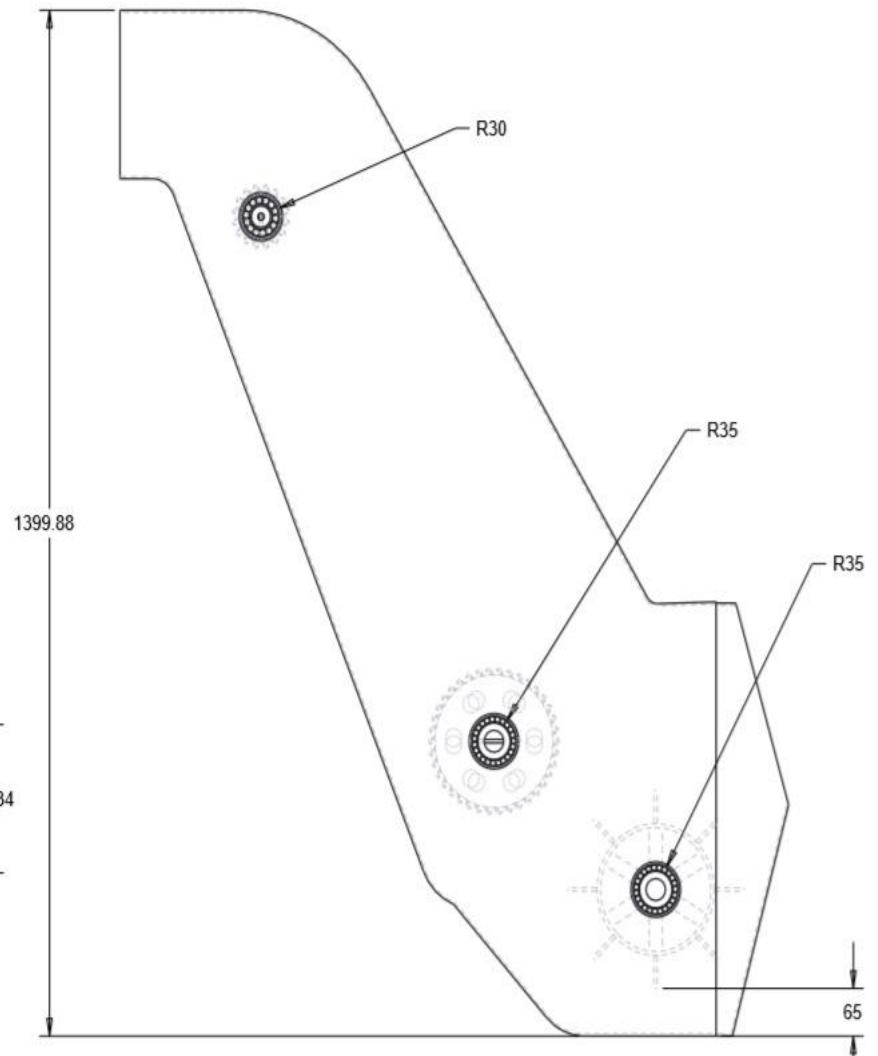
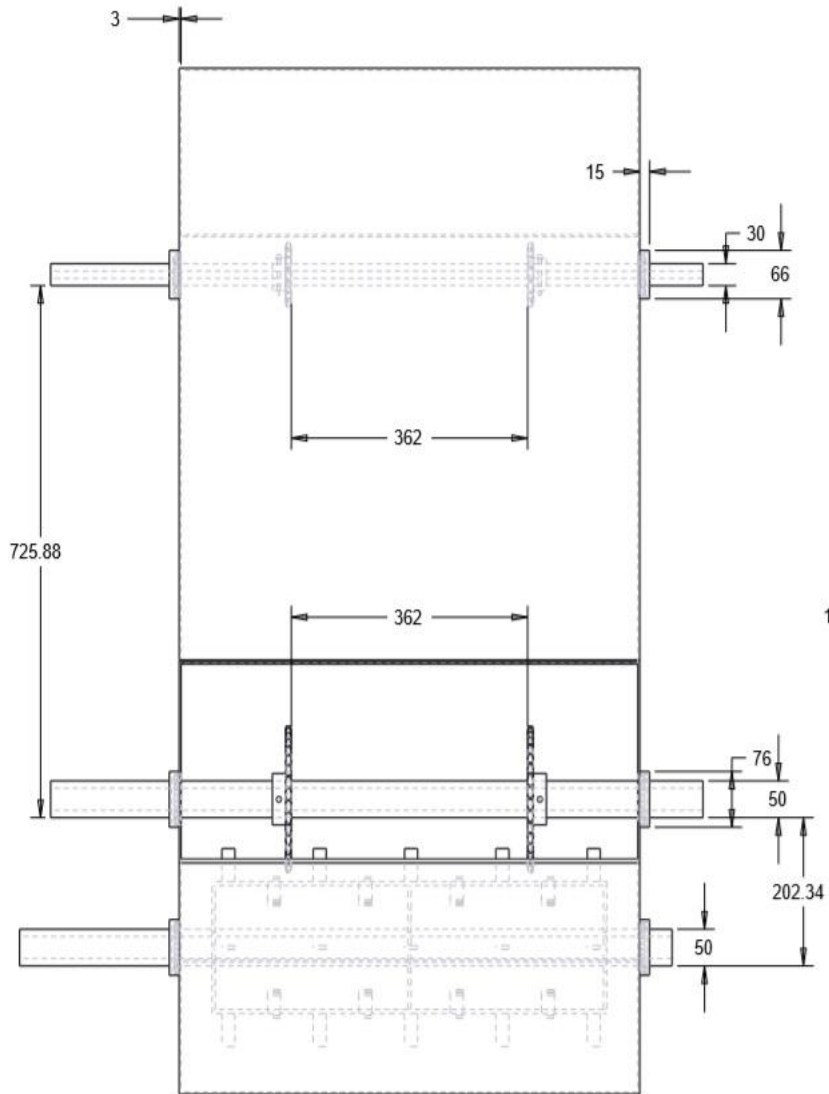
Feeder



Casing



A Portable Attachment





METHODOLOGY

Visit at ASHAPURI AGROTECH

Find out thresher's problem & study about it

Define concept & working on special problem

Literature reviews

Modificaion in feeding system

Design all parts of a portable feeding attachment in CREO 2.0



Implementation as a working model in future

End




CONCLUSION

After implementation of this attachment following benefits are extract which are given below:

- 
- ❖ Reduce the accident compare of the manual feeding process.
 - ❖ Reduce the man effort.
 - ❖ Reduce the time consumption.
 - ❖ Reduce the material waste compare of the manual foundry process.
 - ❖ Improve safety of labour.
- 

REFERENCES

- ❖ Adarsh Kumar (3 april 2002) Development of grain threshers based on ergonomic design criteria
- ❖ A. C Ukatu (29 june 2006) A Modified threshing unit for soya beans
- ❖ Charles Gunnar Birger (3221867, Dec. 7, 1965) Chain conveyer
- ❖ Geahard Hamann (5976013, Nov. 2,1999) Device for preventing accumulation of grain in combine harvester
- ❖ Gary L. Bich (5117618, Jun. 2, 1992) Gathering chain adjustment mechanism for harvester row crop attachment
- ❖ Clarence L. Bandy (5074827, Dec. 24, 1991) Reversible chain conveyer sprocket assembly
- ❖ Raymond G. Bartkowiak (5069331, Dec. 3, 1991) Harvesting conveyer
- ❖ A.R.Wurtele (2435334, Feb. 3, 1948) Conveying mechanism for harvesting



THAN Q...