Steering Operated Crane

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Abstract— We are making Steering operated crane. crane is used to lift ,move rotate and place the material ,from one place to another place .we are using motor, gear for raising heavy loads, Thus intend of we are making project model which can be used to lift load up to 10kg similar design can be used to lift load up to 15kg by increasing overall design dimension. Cost of motor crane would have higher initial investment compared to conventional system, however it would have the advantages such that no fueling cost coupled, low maintenance cost & long life and with other maintenance requirement therefore motor crane could be used in industry construction field over conventional hydraulic crane.

Keywords: Dimension, Investment, Conventional, Hydraulic

I. INTRODUCTION

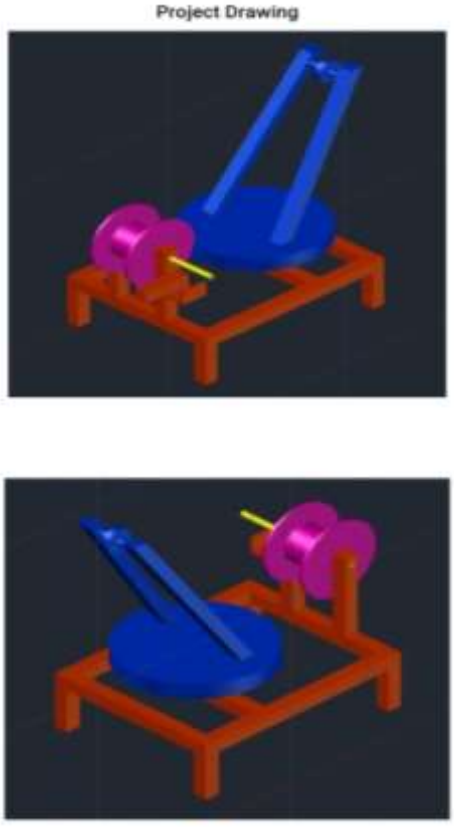
Our goal for this project is to change the direction of designing material handling equipment's to provide cheaper and more efficient designs. The most important factor for the selection of project is that, the project can be made within short period of time and we can use our skills of design and manufacturing very well. 'Steering Operated Crane' is an affordable project. This project work does not require heavy engineering workshop. Raw material is easily available in the local market. Also information about this project is available in the books and internet. So for this project we have discussed with our professors before selecting this project, we started designing this vehicle and searching for workshop to manufacture it. We also started searching for the material for this project.

II. OBJECTIVE

1) To minimize the initial & operational cost.
2) To Transport a heavy materials.
3) To Transporting load without damage.
4) To reduce the human effort & risk

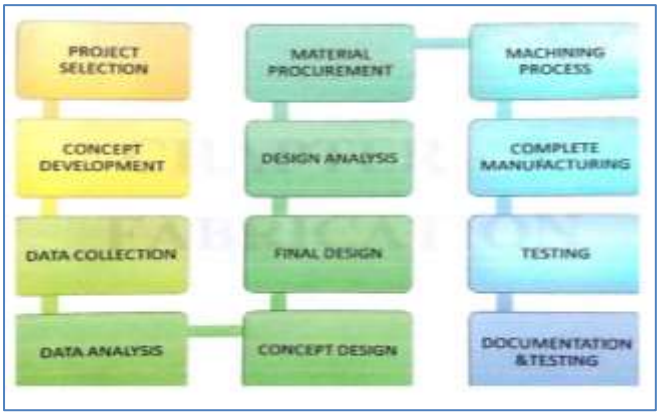
The steering system is configured to implement a number of safety features. The crane includes an engine for driving the wheels connected to the crane which is capable of operation at a variety of different RPMs. In one embodiment, the control system includes a sensor coupled to the engine and the controller for providing the controller with an operating RPM of the engine. The controller is configured so that if the operating RPM is lower than a predetermined amount, the controller adjusts the rate of change of the angular position of each wheel. The controller slows down the rate of turning of each wheel to coincide with the sensed engine RPM.

III. MODELING AND ANALYSIS



- 12 & 24 Volt
- 15 kg Torque
- Two speed permanent magnet
- Water resistant motor and plug connector
- Internal circuit breaker
  1) Energy source = step down 12-0-12V dc.
  2) DC supply = 12v, 5AH for out applications. It can be increased for increased capacity.
  3) Gear = inbuilt on DC motor.
  4) DC motor = 12v, geared.
  5) ON-OFF switch = 16 Ampere toggle.

IV. METHODOLOGY



We are select area of manufacturing and concept development of this project Data collection and data analysis are estimated and then material procurements are carried then design analysis are achieved final design are available for further concept development then actual machining process are started and complete machining process and finally testing and documentation are completed.

V. RESULTS AND DISCUSSION

To complete any project, one has to go through many difficulty .during completion of this project we also have faced many problem beginning the project has been complicated in two different types mechanical Problem.
Mechanical trouble shoot also difficult initially motor capacity was not adjust the assembly requiring system with higher torque and capacity was taken the pulley assembly was very difficult the horizontal with sufficient lent was not available so number of base connected together to form long length jack the working is very difficult after major exercise the result were achieved.

VI. CONCLUSION

Our aim was to lift the maximum weight in minimum power consumption as to reduce the motor cost. Hence we are provided our aim by design a suitable gear box to get maximum mechanical advantages. due to gear box the maximum torque required to lift the load is not coming directly on the motor shaft as we had seen it in the gear box design .so at the end shaft the speed is reduced which we are required & sufficient torque is increase to lift the load. Hence motor is revolving with min. load over its shaft with minimum transformer capacity.

The proper guidance of project head and the sincere efforts of our group have lead to the successfully accomplishment of our concerned projects. "STEERING OPERATED CRANE" was interesting to work on and was also gained in this project work. This knowledge of project will definitely be helpful in our future. So we must maintain that this final year project was an essential part of our engineering education enhancing our technical knowledge and practical skill.

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