



Remote Controlled Forklift

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ABSTRACT:

The mechanical field is improving day by day. Lots of innovative ideas are entering the field. This project report is indeed to endow with a comprehensive study of the technical and theoretical aspects of "FORKLIFT" all the topics covered in this report are essential for the complete understanding and survey of the title "FORKLIFT". The present work is the Remote-controlled fork lift that can store and pick up object from specified storage. Currently, in ware house storage systems are mainly still done in traditional way using human operator to store and pick goods into specified location. They made it possible for one person to move thousands of kilograms at once. This is the general description of a normal forklift. Forklifts are most often used in warehouses, but some are meant to be used outdoors. Our system allows for efficient implementation of this concept. The mini forklift uses pulley and belt arrangement in order to lift loads. The system uses 2 supporting rods with bearing setup to achieve smooth vertical movement of the forklift. Also, we use 4 motor drive in order to drive the forklift with efficient strength. We now use a based circuit system to run the mini forklift from a distance by receiving wireless control commands by Wi-Fi.

1.) DIFFERENT COMPONENTS USED:

1. Base (Chassis)
2. Steering System
3. Slider
4. Bevel Gears
5. Shaft
6. Nylon Rope
7. Pulleys
8. DC Motor
9. Six Pins Wired Remote Control.

2.) WORKING OF FORKLIFT:

1. Inspect the forklift by following the forklift pre-use checklist. Mark each part of the inspection form with a pencil. If the forklift does not pass part of the inspection, report the failure immediately and tag the forklift out-of-service.
2. Sit in the seat of the inspection-cleared forklift and buckle the seat. Do not operate a forklift without wearing the lift seat belt.
3. Put the forklift in neutral, firmly press the brake, and turn the key to start the forklift.
4. Pull the leftmost lever toward you to raise the forks off the floor 4 to 6 inches. Pull the middle lever toward you to tilt the mast toward the forklift.
5. Release the parking brake and move the directional lever toward the direction you need to travel. Release the brake to start moving. If moving in reverse, make sure the back-up siren is working properly.
6. Watch for pedestrians and hazards as you drive. Honk the horn when coming to intersections or when entering or exiting a building. The

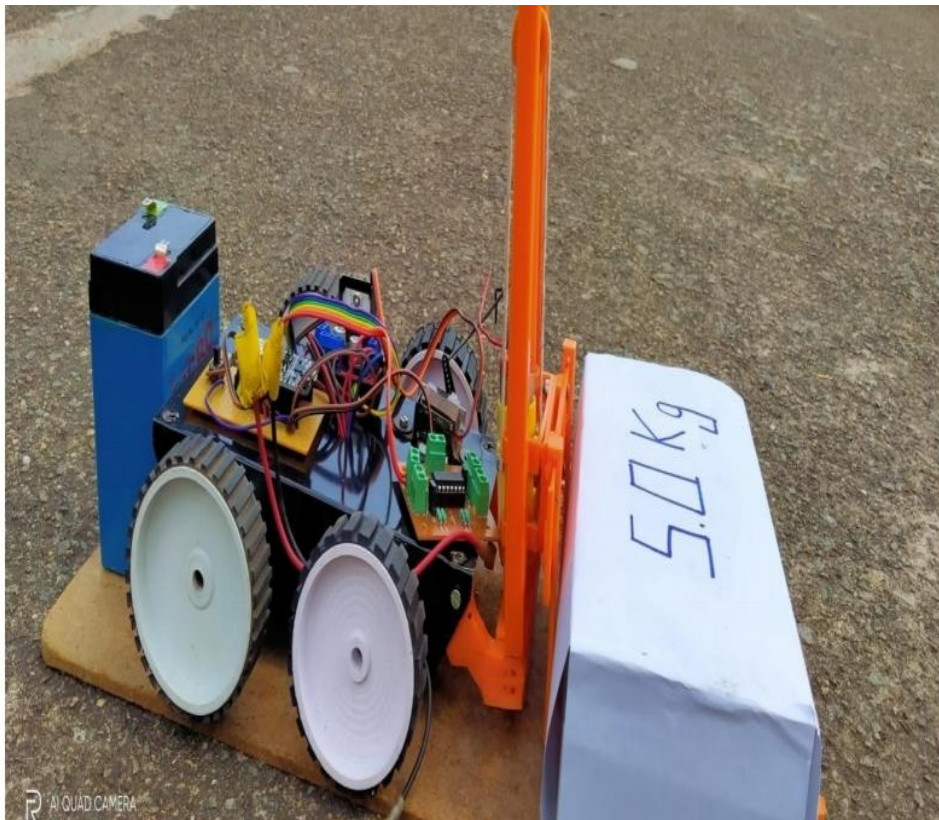
forks of a forklift sit low and are hard for pedestrians to see.

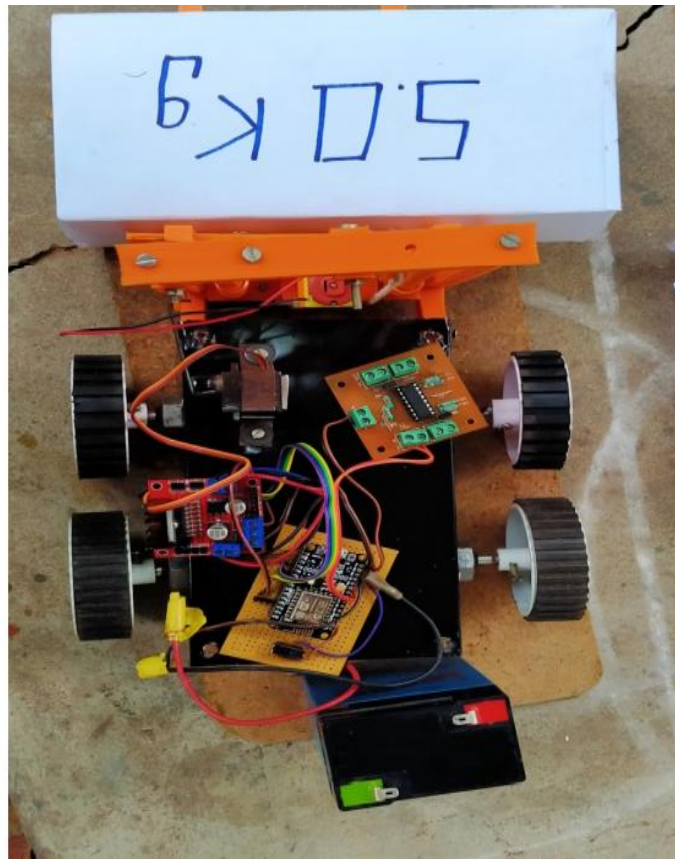
7. Adjust the forks using the left, middle and right (If equipped) levers. Move slowly forward to lift the load. Put the forklift in neutral, set the parking brake, and inspect the load to make sure it is cantered over the forks and balanced.
8. Lift the load by pulling the leftmost lever toward you. Keep the load low to the ground to keep the forklift's centre of gravity low.
9. Drive in reverse if the load blocks your view.
10. Lower the forks to the ground after you set the load in place. This reduces the strain on the forklift's hydraulic system.
11. Turn off the forklift, put the directional lever in neutral, and set the parking brake before removing the seat belt.

3.) CONCLUSION & FUTURE WORK:

The project work —Remote operated forklift is aimed to control through wireless communication network designed with RF modules. The main advantage of using this technology is to increase the safety of operator by operating the forklift from certain distance. This increases the efficiency of the productivity, because human errors due to the poor visibility can be minimized. The system is designed and developed successfully, for the demonstration purpose prototype module (mini module) is constructed & results are found to be satisfactorily. The RF modules used in the project work are purchased from the market, they are working well. During the trail run we have tested the range & we found that the transmitter is able control the forklift from a distance of 40feet. While designing and developing this proto type module, especially while fabricating the mechanical parts, we have consulted few experts those who are having knowledge in Mechatronics, these professionals working at different organizations belongs to Hyderabad helped us while fabricating the forklift. Except mechanical parts, remaining electrical & electronic components are easily available. Since it is a prototype module, much amount is not invested, the whole machine is constructed with locally available components, especially the mechanical components used in this project work are procured from mechanical fabricators, and they are not up to the requirement, lot of modifications must be carried out in design & is essential to make it as real working system. Hence, the forklift is to be enhanced further for obtaining better results. Although a good amount of work has been done in the project work, even though additional features like speed control, high speed, etc. must be incorporated in the real working system. In this regard there is still scope of further improvement in the control Remote Operated Forklift infrastructure by providing more flexible control. The mechanical design must be improved by using suitable gears and bearings. Speed must be increased, when the speed is increased, during emergencies breaking system must be employed. Likewise, many modifications can be carried over in the future work.

4.) PROJECT PHOTOS:





5.) ANNEXURES:

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