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Rocker Boggie Mechanism

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Abstract: The rocker- dread suspense system has robust capabilities to deal with uneven terrain because of its distributing of the cargo over its six bus slightly, while there's one major failing to high- speed traversal over the planar terrain. This paper proposes a new dynamic rocker- dread suspense system with two modes of operation it can expand the span of the rocker- dread support polygon to increase trip rate when the terrain is planar; and it can switch to its original configuration to move in low speed when it's faced with rough terrain. The analysis on dynamic stability periphery and kinematical simulation on the two operating modes of rocker- dread are employed to dissect and corroborate the rationality and effectiveness of the revision in the structure.

I. INTRODUCTION

The "rocker" part of the suspense comes from the rocking aspect of the larger, body- mounted relation on each side of the rover. These rockers are connected to each other and the vehicle lattice through a discriminational. Relative to the lattice, the rockers will rotate in contrary directions to maintain roughly equal wheel contact. The lattice maintains the average pitch angle of both rockers. One end of a rocker is fitted with a drive wheel, and the other end is rotated to the dread

II. LITERATURE REVIEW

This paper analyses the stir of articulated lunar Rover with six cylinder-conical bus and force acting to bus, and presents six operation patterns of stir of rover' wheel and The free- running operation pattern is perfect. In this pattern, the power dispersion between of mechanisms is minimal. The different mode of motor has influence on stability of stir in colorful terrains. We dissect the stir of the lunar rover at the three simple- driving mode of motor in the aeroplane terrain and in the uneven terrain at the points of operation patterns of wheel. According to the mechanical configuration of rover, operations pattern of wheel, and principle of speed matching of bus. we present a control algorithm which can fit colorful uneven terrains and combine it into the whole locomotion control system. At last, the trials in the out-of-door prove that the control system is right and the control! system is stable



A. Components

- 1) PVC Pipe
- 2) Wheels
- 3) Bluetooth connector
- 4) Batteries Cables
- 5) Nuts and Bolts DC motors

B. Advantage

- 1) Arm is independent
- 2) It isn't limited by terrain
- 3) It ameliorate accessibility

C. Disadvantage

- 1) Structure is complex
- 2) Inverse corridor are intrigate
- 3) Possibility of power failure

III. CONCLUSION

To understand the rocker dread medium and advantages we can from its bigger model and commercialization. We learned to work with the mechanical tools. We developed platoon working chops. We learned great deal of soldering chops and little bit about the microcontrollers, RF modules and its mechanisms. To understand the rocker dread medium and advantages we can from its bigger model and commercialization. We learned to work with the mechanical tools. We developed platoon working chops. We learned great deal of soldering chops and little bit about the microcontrollers, RF modules and its mechanisms. The trainability is an important specific should be bedded in an amphibious vehicle during the postdisaster circumstance. This capability helps the vehicle reducing a flipping back and slippage while it on a charge since the terrain face after a disaster is changeable. Therefore, applying the regulator algorithm will optimizing the vehicle capability to manoeuvre in any face condition with minimal threat

REFERENCES

- [1] Jiang Zhu, Yaonan Wang, Hongshan Yu, Wenge Wang and Yaxing Wen (2010), Seeing Incline Terrain for Mobile Robot Autonomous Navigation Under Unknown Environment, Proceedings of the 2010 IEEE International Conference on Information and Robotization, pp. 2296 2301, ISBN978-1-4244-5701-4
- [2] J.G. Marquardt, J. Alvarez, and K.D. von Ellenrieder (2014), Characterization and System Identification of an Unmanned Amphibious Tracked Vehicle, IEEE JOURNAL OF OCEANIC ENGINEERING, pp. 641 661, ISSN 0364-9059
- [3] N. Yadav, B. Bhardwaj, S. Bhardwaj, "Design analysis of Rocker Bogie Suspension System and Access the possibility to implement in Front Loading Vehicles", IOSR Journal of Mechanical and Civil Engineering, e-ISSN: 2278-1684, p-ISSN: 2320-334X, Volume 12, Issue 3 Ver. III, PP 64-67, May - Jun. 2015.
- [5] L. Bruzzone and G. Quaglia, "Review article: locomotion systems for ground mobile robots in unstructured environments", Mech. Sci., 3, 49-62, 2012. DOI:10.5194/ms-3-49-2012
- [6] F. Ullrich, A. Haydar G., S. Sukkarieh, "Design Optimization of a Conference, Page No. 199-210, 2010.
- [7] Mars Rover's Rocker-Bogie Mechanism using Genetic Algorithms", Proceedings from 10th Australian Space Science



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