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Design and Modification of Arduino-Based Rocker Bogie Mechanism for Security Purposes

Hafiz Bilal Khan[1], Ahmed Wali[2], Salman Masroor[3]
[1]Department of Mechanical Engineering, UET Peshawar, Pakistan
[2]Department of Mechanical Engineering, BUITEMS, Quetta, Pakistan
[3]Department of Mechanical Engineering, National Taiwan University of Science and Technology, Taiwan (R.O.C)
Corresponding Email: Salmansk5750@gmail.com

Abstract—The suspension system of the rocker-bogie allows the robot to overcome an obstacle, such as a rock, while the system remains stable on the ground. The linear motion of the bogie of our six-wheeled walker bogie protects the entire system from rollover during high-speed operation. This improvement will increase the reliability of the structure on rough ground and allow faster exploration. Pro E is used in this case to simulate the rocker-bogie suspension mechanism. Our goal is to mimic the rover to detect slippage and deviation from the target path. Experimental results will prove the validity of the models. We will increase the number of support polygons to make the system more stable and flexible at high speeds, while maintaining its original robustness to model and analyze the rover bogie system with improved system stability and operating speed. Several mechanical adjustments are made to the system and suggestions are made to maximize the utility and stability for future operating speeds of the rover.

Keywords—Arduino-Based, Rocker Bogie, Security Purposes