

Tensegrity Wheel with Flexibility in All Directions



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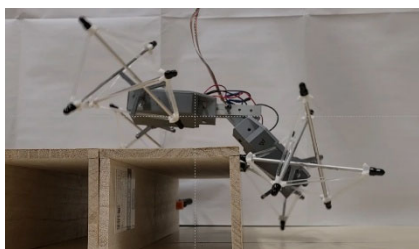
Research Contents Tensegrity Wheel with Flexibility in All Directions

We have been studying wheel mechanisms using tensegrity structures to enable stable movement on rough terrain, such as rocky areas and snowy and icy surfaces.

Tensegrity structures can deform in any direction and can grip the driving surface at multiple points or planes, making them suitable for driving on rough terrain.

However, connecting an axle hub to a tensegrity wheel results in loss of flexibility in all directions. In this study, we propose original axle hub connection method that can maintain flexibility in all directions. And we verify the driving characteristics in active and passive rotation.

In addition, the vehicle body oscillation by tensegrity wheels needs to be solved to use the wheelchairs and pushcarts for transporting luggage and human. We devise a mechanism that can reduce the oscillation on flat ground and toward the practical of a mechanism for moving on both rough terrain and normal road surfaces, seamlessly.



Active rotation vehicle



Passive rotation pushcart

Available Facilities and Equipment
