Impact-Resistant Ambulance Platform With the Properties of a Robotic Manipulator but With the Price of a Regular Gurney

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Vehicle evacuation of injured army man in off-road conditions is associated with added risk of injury and subsequent morbidity. I invented a method of constructing a platform for an ambulance that enables it to transport patients at high speed in off-road conditions. Existing systems for patient trolley/platform or medical stretchers designed to move exclusively on high quality roads. Many complicated and robotic systems exist to transport patients in off-road conditions. They can keep the stretcher in balance while driving on rough terrain but all those systems are heavy and extremely expensive to manufacture and operate. In addition, such systems require highly skilled maintenance. Main drawback of such systems are weight and non-guaranteed operation in extreme conditions and after a long period of inactivity. Herein I present my invention of a platform that is cheap, effective and always ready for use. I suggest hanging the stretcher on a multiple Frahm's damper soft suspension points that dampen all shocks and provide protection against swaying. Non-Newtonian liquid inside the dampers provides additional protection upon heavy impacts further improving safety of the patient. Experimental verification of technology demonstrated effectiveness relevant environments. Suggested soft-suspension platform with a Frahm's dampers allowed balanced and soft transportation of weight/size equivalent of an injured patient in off-road conditions at high speeds. Use of non-Newtonian fluid minimizes the size and weight of the dampers and prevents impacts of the platform upon G-shocks associated with emergency breaking or in case of impact accidents. Suggested system retrofitted in to existing ambulances and evacuation vehicles can improve patient safety during transportation.

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