

# Licensee sought for a mobile-stabilized platform for medical care or security applications

A Czech university has developed a wheeled robotised mobile platform intended as a chassis for light off-road vehicle keeping its load in permanent stabilized state. New patented active suspension enables multiple special manoeuvres. Utilization is expected to be as an advanced wheelchair in social care area or a light carrier in security applications. Partners interested in further development based on a technical cooperation agreement or in a license based on a license agreement are sought.

The Czech researchers active in area of mechatronics have developed wheeled robotized mobile platform intended as a chassis for light off-road vehicle keeping its load in permanent stabilized state. The technology developed is based on previous theoretical research using mathematical and simulation models. New patented active suspension enables multiple special manoeuvres. The aim of the research was developing a technology for transporting defined objects having high demands for maintaining a stable position in difficult terrain. This cannot always be overcome by simple driving and it might be necessary to use stabilizing system and non-standard manoeuvres associated with changes in the configuration of the chassis. Among such devices are wheelchairs or deckchairs designed to operate in difficult terrain and spatial conditions as well as a light carrier for security applications. The platform consists of a vehicle frame combined with four independent robotized suspensions. Every suspension is equipped with five subsystems: The first one is intended for changes of suspensions configuration in the horizontal plane. The second and the third subsystems represent the vertical control of the vehicle wheel with respect to the vehicle frame and are principal mean of the chassis stabilization. The fourth subsystem controls the vehicle ride direction. Finally, the fifth subsystem controls vehicle wheel revolutions. All the suspensions with their individual subsystems are subjected to the embedded automatic control system residing in the on-board computer collecting and processing signals from numerous sensors and accepting commands of the vehicle user. Controls active members installed in individual subsystems are implemented as drives combined from brushless electric motors, gearboxes and feedback units. Every drive has its control unit mounted on the vehicle frame. In comparison with competitive solutions the key benefit of the offered technology is transferring of the stabilization system from the vehicle superstructure directly into the chassis. There are 4-wheel independent active sprung half-axles each having 4 degrees of freedom. Such solution construction of half-axles allows vehicles except for stabilized drive also a lot of unusual manoeuvres - such as assistance with embarking and disembarking, changes of clearance height while driving, lateral or diagonal driving and cornering with any radius turns including turns on the spot. The construction also allows configuration changes to the chassis and lifting up the individual wheels from the surface, which allows slow-movement in with difficult terrain (e.g. mud); crossing the obstacles and the eventual movement into and down the stairs. Partners interested in further development based on a technical cooperation agreement for adapting the technology for specific needs (preferably within a joint European project such as Horizon2020 etc.) as well as in license based on a license agreement in order to commercialize the product are sought.

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