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A TRANSFORMING VEHICLE

The aim of the project is to create a vehicle that will be used as a car and a motorcycle. At this stage of development studies include knowledge of such sciences as mechanics, aerodynamics, hydraulics and materials technology.

Exploitation of the vehicle will take place on the road, highway and off-road or in narrow alleys where conventional car does not fit because of their size and the bike passes easily. It is important that the vehicle which a person buys a person could be used anywhere.

In this case we consider a hybrid combining basic properties of motor vehicles and motorcycles owing to changes in body shape and size and its ability to switch between the two modes: car and motorcycle respectively.

In general the design consists of several modules responsible for changing certain characteristics or together with others and form new characteristics.

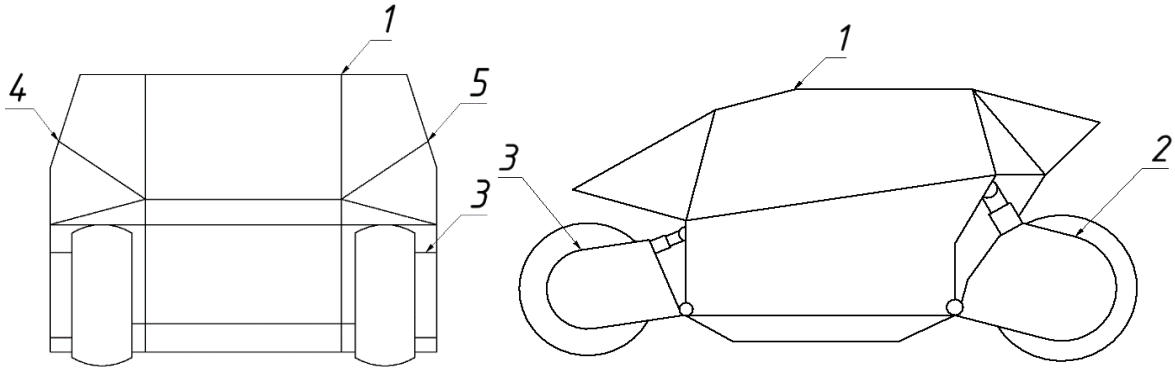

Fig.1. The scheme of an automobile.

The main of the modules is the housing (1) which will change the width of the road or in case of presence only a driver according to the speed. Thus, the smaller the area of surface resisting the wind the better the aerodynamic properties of the car and it can accelerate faster. The bottom of the convex shape is the strongest part of the body because it is a bearing element. It consists of three parts: two main parts(4) and (5) and another binder which is part of the expansion of the housing. Connecting link using hydraulic system hides equally in the other two parts.

To ensure the rigidity it is necessary to provide small gaps between the walls, on which links slide relatively to each other and provide secure fixation in both positions. Housing along the perimeter is composed as "accordion", and flexible glass is engaged in the sideways of the housing. The transition between configurations can take place on the move and in astandby mode as well. On the move it is possible only on a straight road through the wheels turning inside the housing at an angle in the range of 1-5 degrees depending on the speed. In this case the load on the hydraulic system is minimum. In the standby mode sliding levers beneath the housing are used raising the vehicle above the

ground to avoid tyre axial friction against the road surface. The hydraulic system is the main force acting in this case.

The driving elements of the hybrid are modules of suspendering rear (2) and front (3) parts. The car will move, turn, withstand cornering load and modify clearance with their help. Front module is responsible for turning the front wheels and the change of clearance. The rear modules are responsible for the movement of the vehicle, clearance and have the ability to turn in a small sector to change the width of the car on the move. Two electric motors are installed being a driving force of the hybrid. To counteract the cornering centrifugal force pneumatic suspension will be tilting car sideways shifting the mass center closer to the turning of the external sector. The value of the tilt will be different between phase of the car and the motorcycle.

This study combines the best properties of the car and the motorcycle as well. It enhances human movement even without leaving the car.

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