Stringing up the Future

Whatever rustic-potato Belarus seemed to the world, It has something to surprise with. And OnAir together with the first in Belarus the representative of the brand of electric cars Tesla from the company Tesla-Cars (www.tesla-cars.by) offers to make sure of this.

In EcoTechnoPark near Maryina Gorka, for the second year in a row a project aimed at saving the planet with the help of “skyway” roads is being implemented, which should optimize the existing ground transport infrastructure, improve the ecological situation and the quality of life in general. So far to have a look at the transport of the future On Air used the possibilities of today’s public means —the electric car “Tesla Model S”.

The author of the project, engineer and inventor Anatoly Yunitsky himself showed us around the test site, where the work on preparing for the official presentation of the skyway roads at the eco-festival on July 1 was in full swing. As a physicist addressing the poets, he immediately explained us that *“the world will be changed not by Tesla, which is still a car. It rides on the road, wears out tires, consumes electricity, which is generated by a thermal power station operating on fuel oil. The energy is then supplied through buzzing wires to the socket, losing electric power and damaging everything under the power line”*.

“SKYWAY” TO FUTURE

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Test samples that, in the opinion of the developer, may really change the world. It is calculated that these samples are more efficient than “Tesla” by 7 times due to exceptional aerodynamics and steel wheels. They are partially represented at the test site: the track has a suspended urban option of the string transport — a 14-passenger unibus (4 seats and 10 standing places), designed for 150 km/h. *“So far it runs much slower — the route is not fully prepared”*. Whereas on the top, the same track is designed for high-speed mounted transport (up to 500 km/h). Another track next to the reversal site is for demonstrating the capabilities of a two-seat “unibike”: a vehicle with an expected speed of up to 150 km/h.

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The third route is focused on cargo transportation, with a declared capacity of 200 million tons per year (which is twice as much as that of the Trans-Siberian Railway). Between it and the unibike track in the future an example of a smart residential building should appear, typical for the linear cities of the future, which are still beautifully drawn on the renderers. The existing cities, according to Yunitsky, are doomed: "The huge megacities that were created by cars,

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We get into the unibike and it starts to move. *“And you wanted the Wright brothers to build a Boeing 747 at once?* — responds the inventor to our calm faces, — *We have already exceeded the existing speeds of public transport”*.

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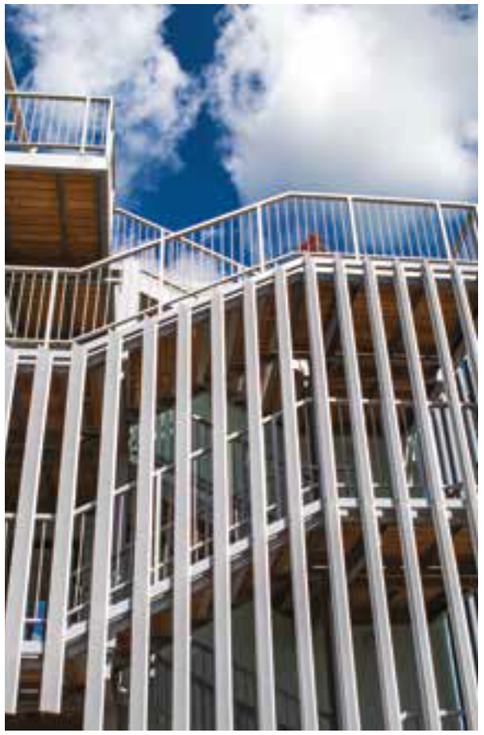

An important part of the passenger transportation system of the future is made of competent interchange stations, which are called to show the perfection of logistics. A prototype of this is presented at the test site. The station has two levels, the productivity expected by designers is similar to that of Dubai airport: 60 million passengers a year, and it should be provided with a time interval of 20-30 seconds, without interruptions and downtime. On the roof of the station there is a mini garden planted in the soil, which was removed during the construction of the building, with reduced weight and improved with humus.

Ground gardens are available, too: apples, pears, cherries and grapes areplanted between the lines and demonstrate,

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according to the Deputy Director for agrobiotechnology Vasily Pavlovskiy that *"these tracks are eco-friendly. Half a hectare of fruit bushes are planned between the tracks"*.More trees will be planted during the July EcoFestival by 2,500 people from 60 countries of the world.

Honey from the flowers growing under the tracks is produced at the local apiary, and radishes from local elevated seedbeds of higher yields, as it turned out, are even suitable to eat unwashed. For a better persuasion, fish was stocked in the fire protection pond of the former tank range.

"People are conservative and inert. In 1895 a British mathematician and physicist, President of the Royal society, Lord Kelvin also said that "flying machines, weighing heavier than air are impossible!". And the US government actually declared William pit Boeing a criminal. They did not believe in Henry Ford either, and now the Americans are born and live in cars, without exaggeration. There is nothing supernatural in SkyWay transport. We don't compose anything. It was written a long time ago in the building code for bridges and supports how to design them including the requirements to loads, temperatures, soils, concrete and steel tension. The basis of SkyWay transport is in the laws of real-world physics. With these laws in mind, we now have got an optimal transport system, which we are going to show in July. It will demonstrate itself fully with the mass introduction: when millions of miles of routes will be built, when string transport will replace the conventional one".

According to Anatoly Yunitskiy, the first contracts has already been signed, in particular for the construction of an urban track in Mogilev and lines in mountains of Indian Dharamshala, where the residence of Dalai Lama is situated. Three years later the route should be commissioned into operation, and in the meantime near the town of Maryina Gorka a pilot section of the route with a gradient is under construction that an Indian delegation. Came to see.

"We are making the future, — says Anatoly Yunitskiy while drinking tea by the fireplace in the wooden guesthouse. —*I have always lived for the future and thought about it. we borrowed the land from our descendants and we are going to leave them a garbage dump. Do you know the famous experiment with the frogs? They took two vessels — with very hot water and cold one and put them on the fire. They have put two frogs in the vessels. The one that got in the hot water, stormed out of it to be saved. The second one felt comfortable in cold water and when it became a little warmer, it just swam out from that place. It got hot and it again moved out. As a result it has got cooked in the end. This is the script of our civilization. The mankind has left two or three generations to the point of no return. I hope this year people will realize that this is the future, but not Elon Musk with his hyperloop".*

(Hyperloop is the project of a vacuum train).

And while the future is being built, we get into "Tesla" and drive on without exhaust and recharging to the pilot production facility in Shabany.

Andrey Rudnitskiy, test engineer: *"The speed of unibike is 55 km/h — it is 30% of what is planned. We accelerated it to 87 km/h on the test track. When we reach the cruising speed, it will be exactly a flight: unibike even looks like a helicopter. We can implement it rapidly enough — the question is in the interest. This is longer than to pull wires for a trolley bus, but faster than anything else. If need be, even today it is possible to arrange a crash-test, although the entire philosophy of SkyWay transport involves safety. Except that it will a crash-test with birds, low-flying aircraft and drones from journalists (Laughs.)".*

Alexander Sinkevich, the head of pilot production facility: *"The pilot production facility in Belarus exists for a little more than a year and is developing very intensively. Both in terms of personnel (we now have 70 professionals from different sectors, and none of them are random; we are open for new people) and equipment. We actively use the technologies of working with composite materials and constantly increase the fleet of high-precision processing equipment. At the moment we are working with a unitruck (a prototype of a cargo vehicle for the transportation of bulk goods), a double-rail unibus and three-section unicar. Several other vehicles are under development: they will pass through the experimental production facility and testing Department we shall identify the deficiencies and changes in configuration."*

Yevgeniy Protasevich, leading designer: *"While designing the unibike we have abandoned the classic metal framework, which is then dressed in fiberglass panels in favor of a monocoque — a one-piece, all-plastic bodywork. The unibus has an aluminum framework and optimal light and strong alloys. However, the cargo vehicles have also steel elements — it is one of the most loaded vehicles."*

Dmitriy Kniga, Chief of testing Bureau: *"If everything is confirmed in the process of testing, we can talk about developments for users. It's still a new product and we need to be sure that everything works as it should. There are two objects under testing now — a unibike and a unibus. We are testing suspended structures in parallel. So far, everything goes on in a regular operational mode, we are following the methods provided by designers. Unibike is tested for noise, unibus — for battery capacity timing. To make SkyWay transport reality, many things should be changed: from the consciousness of people to infrastructure."*

Bins of Motherland

5 ADVANTAGES OF SKYWAY TRANSPORT OVER LAND TRANSPORTATION FROM ANATOLY YUNITSKIY

1 Aerodynamics, for which more than 90% of energy is usually spent at high-speed motion.

By raising string rails above the ground and thus eliminating aerofoil effect (a sharp increase in aerodynamic resistance due to the proximity of solid roadbed) during experiments in a wind tunnel there was obtained 0.05 drag coefficient for the unibus. And the theoretical limit in physics is equal to 0.04.

2 The system "steel wheel on steel rail". Its efficiency factor is equal to 99.8%, and the losses are manyfold less than in the case with a pneumatic tire on the asphalt-concrete surfacing. They are by times less in comparison with other systems — air and magnetic cushion, including those due to the presence of aerofoil effect in the latter.

3 Environmental friendliness.

SkyWay transport is elevated to the "second level", it does not depend on the terrain, supports stand pointwise — there is no need in global land allocations and high embankments, which, in fact, are low-pressure dams that kill the environment and prevent natural movement of ground and surface water. No one will die under the wheels of SkyWay transport, it does not need asphalt, which currently covers on the planet the territory equal to the area of five (!) Great Britains. Energy efficiency allows not to burn huge amounts of oxygen and does not pollute the atmosphere with exhaust fumes.

4 Comfort. Both from a physical point of view (evenness of the route, smoothness of motion and high traffic speed) and psychologically (large area of glass panels will turn an ordinary travel into a pleasure at the sight of surrounding nature from the height of a bird flight).

5 Safety. No weather constraints (very low windage and a good streamlining not only in building structures, but also in rail vehicle), the human factor is minimized (the traffic will be mostly controlled from a common center and duplicated many times by linear and on-board computers united in a network), a continuous carrying track with a tenfold margin of strength would not break, even if an intermediate support is damaged. In addition, an anti-derailment system.