

ELECTRIC RALLYCROSS CARS



British motorsport legends are raving about the debut of a revolutionary Polish electric car in a rallycross event. PRZEMYSŁAW ROZMYŚLOWICZ, one of the vehicle's designers, talks to Joanna Laskowska.

PM What are the origins of the ELIMEN electric car brand?

In 2008, we began to develop the concept of electric car conversion. We have converted vans, passenger cars, boats and motorboats. We have also developed an electric motor for a cruise ship twice in our career. The experience thus gained has allowed us to more accurately determine the best ways to perform the task. We also began to evolve to become a provider of technological solutions.

PM At what stage is the implementation of the zero-emission electric car project?

We now have all the software necessary to manufacture an electric car. We have developed an electronic system which controls batteries and their charging. We are planning to provide modular rapid charging systems. We've built a prototype of a last mile vehicle based on a composite structure. We have also built a mobile platform, on the basis of which the vehicle was developed in partnership with Poczta Polska under the Scaleup programme.

PM What new technologies have been used?

Firstly, ultra-light composites. We use the latest solutions in manufacturing and strengthening of the composite structure. Secondly, we use brushless BLDC motor technology as a key feature. We have developed the entire battery control system from scratch.

PM What are the advantages of a composite structure?

Given the vehicle size and load capacity, it is a much lighter structure compared to a conventional car. It allows you to travel longer distances while consuming less energy. The implementation of this kind of self-supporting structure is many times cheaper than the use of steel structures. More than a dozen composite components are riveted together and glued to the vehicle body. That's why the car is characterized by very high rigidity.

PM How far can you go on a single charge?

It depends on the battery pack. In the basic version the range is 80-100 km, but it can go up to 300 km if the right batteries are installed. Power for a 100 km drive costs about 1.5 euros.

PM What's the maximum speed?

We have assumed that the vehicle would perform best at a speed of 80-90 km/h. Having analysed traffic in urban areas, we found out that exceeding 60 km/h is completely uneconomical.

PM How long does it take to charge the vehicle?

Using a rapid external charger, it takes about 30 minutes to reach 80% of the battery's capacity. Using an ordinary socket, about 8 hours is needed to charge the largest battery.

PM When are the first such cars going to roll down the streets?

We are soon going to deliver the first vehicles to customers both at home and abroad. A van will be available in two body versions. It will be adapted to serve various sectors, for instance a courier service. In addition, it will serve as a base for a number of public transport vehicles.

PM Innovative electric racing cars have entered the rallycross circuit. How well do they perform?

There are two types of motors with a maximum power of 300 and 450 HP. This allows us to build a 300 or 450 HP rear-wheel drive car, and a 500 or 650 HP four-wheel car. We have also designed a racing car battery. In motorsport we are working in two parallel directions. One is what are known OPEN N group cars, with a very wide range of structural changes. In this group we have a vehicle based on Ford Fiesta. We also work on electric vehicles produced in series, based on Fiat 500.

PM The future belongs to electric cars. Are you ready for it?

Yes. We are a very well prepared pioneer.

PM What about rallycross?

Daniel Śliwka, the co-creator of the vehicle and I, have never had any doubt that electric cars will become part of the rallycross circuit.

ROBOTISED PARCEL TERMINALS

THE FUTURE OF THE E-COMMERCE AND E-GROCERY SECTOR

Jakub Maksymowicz

NEW CHANCE FOR RETAIL TRADE

In Poland the parcel delivery sector relies to a large extent on parcel lockers. A few years ago they revolutionised the market. Now, time is coming for another step because the e-commerce, convenience and e-grocery sectors continue to expand rapidly and have a lot to offer. The Retail Robotics company (formerly Aqmet) is working on solutions which may release and exploit their latent potential.

President of Retail Robotics Lukasz Nowiński, who has greatly contributed to the launch of the well-known chain of InPost parcel lockers in Poland, and the company's marketing director Marek Piotrowski talk about the new undertakings. Retail Robotics' flagship product will be ParcelHero, a robotised self-service parcel terminal. Based on Cartesian robots, the terminal will be installed in places where this has not been possible so far due to a shortage of space.

SPACE AND TIME OPTIMISATION

"There is a shortage of floor space for parcel lockers, especially in large urban centres. An ideal solution are machines which occupy as little space as possible and are able to accommodate as many parcels as possible," says Rafał Brzoska, president of the Integer.pl (owner of the InPost brand). "The answer to this problem are the robotised solutions which make use of vertical and non-retail space in shops."

Small convenience stores, because of their omnipresence both in Poland and other countries, are potentially excellent parcel collection points. The ParcelHero terminal is revolutionary because it is to occupy only 0.5 sq. m. of retail space. "The rest of the machine will be placed over the shelves and behind them. There will be a robot inside the terminal handing out parcels. At present, no other solution optimising space in this way exists in the world," says Marek Piotrowski.

ParcelHero will have room for up to 150 parcels. Thanks to two robots working

simultaneously, it will be possible for a parcel to be dispensed even in less than five seconds. The terminal, just like classic parcel lockers, will reduce the cost of "last mile delivery" by up to 90%. Apart from easy and fast brick-and-mortar shopping, a convenience store will now also mean the ability to collect one's online purchases at the same time.

Lukasz Nowiński points out that the complexity of the project is a big challenge as it requires the involvement of local and global retail partners and courier companies dealing with e-commerce orders. "We have to deliver a technology which will meet all expectations and requirements. And there are a lot of them. Luckily, we have many years of experience in the sector, which helps us considerably in our work. We develop most of the devices and software, including robots, on our own from scratch. This requires specialised staff and resources, which we have."

IMPORTANT MOMENT AND REBRANDING

The company is at an important moment. "We are turning from a company manufacturing

classic InPost parcel lockers into a firm developing its own innovative terminals dedicated for the whole world, hence the rebranding and the change of the previous name to Retail Robotics," says Marek Piotrowski, who is responsible for this process.

The company's goal is to "unleash" retail trade by combining the advantages of the three fastest developing segments of the market - convenience, e-commerce and e-grocery - in the "convenience 3 in 1" concept. The innovative solutions cut retailers' costs and increase their profits while at the same time offering convenience to users.

The new solutions of Retail Robotics focus not only on reducing last-mile delivery costs, but will also help reduce street traffic burdened with large numbers of vehicles serving e-commerce. Courier vehicles literally block the streets and pavements of Paris, London, New York and other cities.

The unveiling of the terminals developed by Retail Robotics and the first pilot schemes are planned to take place in France, Poland and Britain next year. •

