Electric CAN scooter

Specs E-Mobility has set itself the task of bringing a electric scooter on the market. Founder and managing director Eelco Gielen talks about background details and challenges of this project, in which Miunske, with its CAN products, is also involved.

(Photo: Miunske)

Q: Mr. Gielen, with your Electric Dutchman you want to help to relieve congested inner cities and counteract the environmental impact caused by combustion engines. In doing so, are you trendsetter?

A: I had the idea for the scooter back in 2011/2012. However, at that time there wasn't yet a market for an electric scooter. For me this meant I had to put this project aside until the right time arrived. The moment came in 2014: "Now is the time, you must now make something out of your idea." This was the time the first Tesla Model S appeared on our roads. And Toyota had also raised and developed the Prius from a boring car into a smart business car. Electro-mobility was not yet something for everyone, but the market had changed. This opened my eyes and gave me the impetus to start implementing my idea. But first of all I wanted to know whether I could put together a team to work with me on this project. And whether I could rustle up the money to finance it. At the end of 2015 we were then able to say: "We have the idea. We have the people. We have the money. So let's begin!"

Q: That was two years ago. Do you see yourself as a start-up?

A: Specs E-Mobility can be called a start-up. But as one with many years of experience in a young team. At 36, I am definitely the oldest in the company. On average, the team is only 25 years old. If you consider the employees and our location, you could say that we are a startup. But we are ready to grow.

The Specs E-Mobility team with its CAN-based scooter (Photo: Miunske)

Q: In the electro-mobility sector you, like in other companies, are also facing the challenge of having to conquer a market. Not an easy task, isn't it?

A: Most means of inner-city transport currently available pollute our towns and cities. And our product is a solution. Not for all, but for example, for the delivery services. Or for short personal trips. We have set ourselves the target of getting 1 000 scooters on the road this year. On the Dutch market first. Because we have an EC type approval, Europe is our goal. Because the problems are the same wherever you go: Air pollution in towns and cities, traffic noise, congestion.

Q: Wouldn't it have been better to develop a less expensive product, which as many people as possible can afford?

A: With two versions of the Electric Dutchman, we mainly see ourselves as a competitor of the suppliers of high-end scooters with combustion engines. Because many electrically operated vehicles cost many times more than those with combustion engines. We see the reasons for this on our costs side. However, it's a real battle to reduce these prices. But we also know that this is the only way for us to penetrate the market. After all, society will only change its attitude if electro-mobility does not necessarily have to be more expensive as conventional drive systems. If the price is no longer the problem, more people will think about the environment.

Miunske's CAN-based module (Photo: Miunske)

Q: In this context it is often criticized that many products come from China. Especially electronics, it seems as if they are no longer produced anywhere else.

A: Our scooter carries the label "Made in the Netherlands". This doesn't mean of course, that we can completely do without parts from China. Yet we want to stay as regional as possible. Therefore, a large proportion of the components we use come from the Netherlands or from Europe. We looked for our components in the Netherlands first, then in our neighboring countries, then in their neighboring countries. There are also very practical reasons for this: Miunske, for example, belongs to the same time zone as our company. We also have several suppliers in China and in the USA. There, for example, it is always a problem to call and plan a phone conference. Each individual step has to be agreed beforehand. It is easier with Miunske.

Q: By the way: Before you developed the Electric Dutchman, you not yet had any contact with Miunske. How did you come together?

A: The short answer: Google, Niels, Miunske.

Q: And the detailed one?

A: We were looking for electronic components that can be programmed. So we can combine each input that we have with any state-of-the-art output. Another specification that was important to us was that it was CAN-based. On Google we found a large number of CAN modules, certainly a dozen. However, several of them were only intended for use in a car. This type of ECU is probably more suitable, but it is also many times more expensive. Because they have to be especially programmed, it is necessary to attend courses and study to find out how to use them. Overall, this was too expensive for our needs. However, we found that Miunske had a CAN module that fulfilled all our requirements. Miunske also performed a range of tests with its modules. A sales partner of Miunske, Niels Vesters, then told us more about the company and we were considerably impressed.

Q: Did this enthusiasm working together remain throughout the entire project?

A: Initially, Niels was our contact. But after we received the samples and tested them for our functions, we found out what we wanted to do is not possible with the standard Miunske programming. We had another company, which mainly deals with the programming of micro-controllers. We asked them whether they could help us to realize other functions with the module. Our partner therefore had many phone conferences and active email correspondence with Miunske. Through this communication it was possible for us to access another area of the processor, so that we were able to write our own script. If Miunske would have told us that this is not possible and we should use its standard software, our project would have failed. But all those involved did their best to help us.

Q: That sounds like very special requirements. Will you tell us what they were and what you needed them for?

A: There are numerous options on the input side. For example, if two inputs are "high", the output should be "low". The special feature is that our inputs are independent of each other, but must know the respective other status, in order to switch an output. And this is not a standard option of the Miunske modules. An example: Our tachometer measures the speed at the front wheel. This requires quite a lot of programming, if the tacho exceeds a maximum, it must switch a "high" output. But if the output is "high", the scooter can no longer run. These are functions of the Miunske module, which we use, but not in the standard configuration.

Q: That was probably not the only challenge. Were there other problems that you had to solve during the development?

A: Yes, many. For example, the batteries. Because the market is still at the beginning, a lot would have to be invested in research and development. Equally in the combination of motor and controller. There are already products on the market, but if you want to have a truly good end product, then you have to do a lot of development work so that it functions. It is possible to buy a motor in China. A motor control can also be bought in China. And if we add a battery and wire it all together, it will work. But you are a long way from having a good driving system. But we wanted a driving system, in which all parts and coordinates are matched with each other. So that they understand each other and can communicate with each other via CAN. Our standard: If you see on your display that the battery is empty, then the battery really is empty. Then you know with certainty that you have to recharge it. If the battery is at 80 %, then you know that you can drive another 50 km. And with certainty. If you combine several products with each

other, it can be a real problem. And another problem is that you have to find a motor controller suitable for the motor. Because if the combination is not good, a lot of energy is lost in the system, which reduces the range. It is therefore not so easy to find products and to put them together.

Q: With the CAN-based Miunske modules you came a lot closer realizing your idea. Is the Electric Dutchman already being produced in series?

A: No, not yet. We are shortly before that stage and are testing it for the release. We are therefore performing tests for the official approval and homologation for road service. They are also all done and approved, but we still need the final stamp of the RDW, the Dutch licensing authority (Motor Transport Authority). When we have this stamp, we can start the series production.

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