

2022
EVENT PLANNER
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SERVICE DEALER

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NOVEMBER/DECEMBER 2021



GETTING BACK TOGETHER

Trade events, dealer roadshows,
demos and the return of the
Service Dealer Conference

Dealers get hands-on

Stiga introduces new machines to its network

Robotic skills at Man City

Launch of new autonomous
commercial mower

New player enters market

Segway hits lawn & garden sector



AGILITY & ADAPTABILITY

Q&A with STIHL GB's
new MD, Kay Green



RoviMo, the UK's first autonomous battery-powered cylinder mower, in action at Manchester City FC

ROBOTIC SKILLS DISPLAYED AT MAN CITY

The latest autonomous mowing solution for turf professionals, the RoviMo, was recently unveiled to an audience of Premiership groundstaff. Service Dealer's LAURENCE GALE Msc, MBPR, joined them to find out what the robot could offer – and at what price?

A recent trip to Manchester City's Training Academy enabled myself and other invited guests to witness the unveiling of what was described as the UK's first autonomous battery-powered cylinder mower – the RoviMo – developed and manufactured by Ronovatec, a Swiss-based company. The unit is being distributed by the CGM Group <https://www.ggmgroundscare.com/> here in the UK, overseen by their Managing Director, Chris Gibson, who readers will know as *Service Dealer's* current diarist of the season.

Chris was excited about the potential of this new product, telling the invited guests that RoviMo is the world's first intelligent electric vehicle capable of mowing patterns autonomously according to the guidelines of

national football associations, UEFA, or FIFA, precisely and over the shortest distance. It can offer a range of cutting patterns at the touch of a button.

Now into its final phase of development, the object of the day's demonstration was to allow some professional Premiership grounds staff to come and see it working. Also the day meant Ronovatec and GGM could receive some feedback and observations from these leading grounds professionals.

As we all know, mowing grass is generally a repetitive, time-consuming, noisy and environmentally-damaging process. In the season between April and October for example, outdoor football pitches have to be mowed about 50 to 60 times. Stadium football pitches are mowed 70 to 90 times a year or more, depending on use. The tight occupancy of the football pitches, the availability of staff, the condition of the grass, weather dependency and noise regulations are influencing factors that put professional grounds teams under time pressure.

With much more focus and attention on climate change issues, and the fact that many of our land-based industries are now being forced to move away from oil-driven vehicles, the time has come for companies and business to start investing in these new cleaner initiatives and move to a more sustainable way of managing their sports facilities.

The approach of Ronovatec, however, was to take this concept a stage further and produce a fully autonomous battery-powered vehicle that does away with having to tie up valuable staffing resources.

I was looking forward to the demonstration and, like many of those attending, had several questions about the concept and how it could deliver on its promises.

At the event we had representations from Arsenal, Burnley, Everton and a strong contingent of the Manchester City grounds team under the leadership of Roy Rigby.

Roy has been in this industry 40-plus years and knows only too well that we, as grounds professionals, have always been looking for innovations and efficiencies to make our jobs more productive and a safer environment

to work in. The opportunity to reduce staff man-hours on such basic tasks as brushing and mowing, on both natural and artificial pitches, may well be a sound investment for the club – especially if it can deliver the high standards that are now expected at Manchester City FC.

Innovative ideas

The day began with an introduction to the company that took on the production of this autonomous vehicle and has spent six years bringing it to fruition. First up was Marcus Riva, CEO at Ronovatec, who gave us an insight into how this project came about, starting with his initial thoughts on its merits in 2015. He said a partner was found in the University of Applied Sciences and Arts in Lucerne who, along with sponsorship from Innosuisse, produced the first prototype in 2018. Thousands of working hours were invested into R&D with regards to intelligence and mechanics. The result is the first fully electric spindle (cylinder) mower robot to autonomously mow lawn patterns.

To date the company has built seven of these RoviMo units, with six actively working in Europe.

The development of this autonomous unit, Marcus



Marcus Riva (right) explaining the concept and development of the RoviMo





Examining the RoviMo mower

explained, was essentially to provide an equipment carrier system that can autonomously, quietly and precisely perform various repetitive operations associated with the maintenance of professional sport playing surfaces, both natural and synthetic pitches.

The company is currently looking at providing a set of rotary mowers, brushes and verticutting units to add to the unit, along with developing a triple-cylinder mower attachment that will be able to open up the market to golf clubs. In fact, the scope of attachments that could be developed is staggering.

It was then left to Flurin Arner, the company's software engineer, to take us through the finer points of the machine and demonstrate it in use.

The RoviMo is an autonomous mobile robot or AMR. It is a multifunctional platform for the management of lawns and other green spaces. In essence, it's a computer-controlled, fully-autonomous robot on three wheels. The front wheels are individually controlled and the rear wheel allows manoeuvring around tight curves due to its swivel axis and precise bearings.

The steering has been designed to be gentle on the turf leaving no marks or gauges in the surface.

The unit can also be controlled by a phone app and has a manual cable controller, if you so want to be in control yourself.

The mower is described as having a small footprint with a total weight of circa 300kg. This low weight is designed to protect the turf and underlying soil from excessive load or compaction.

The robot is driven purely electrically with the battery not only providing long operating times but also a low centre of gravity, thanks to the design. The modular design allows diversity and multi-functionality for outdoor use, especially regarding sports fields.

with the provision of numerous built-in sensors ('sensor

fusion' of GPS/RTK data with odometry, IMU, etc), it is possible to manoeuvre the vehicle according to a predetermined path with centimetre precision.

In addition to the navigation sensors, multiple safety sensors are integrated onboard so surroundings are scanned constantly for obstacles and dangers.

If RoviMo spots a danger, it will slow and then halt, alert the operator via text and if the obstacle disappears, ie an animal moves off, it will automatically resume its planned path unless otherwise directed by the operator.

The battery, we were told, consists of multiple lithium-ion cells, which are connected accordingly and supply a nominal voltage of 48V DC. The battery supplies all components such as motors for the locomotion of the vehicle, an electric cylinder for lifting the stem and a drive for the spindle or similar along with the navigation and security elements.

The integrated battery has a capacity of 7.5kWh, with which an area of 8,000m² can be managed – eg mowed with the cylinder module twice.

The charging cycle is low at approx. 2-3 hours, with charging life cycle in excess of 3,000, cycles as guaranteed by the manufacturer. The unit is powered by six batteries that can be interchanged with any replacement batteries held.

Essentially the mower is said to be able to mow two full-size football pitches in a day (8hrs), usually taking three to four hours to mow each pitch. However, depending on ground conditions and on the type of pattern chosen, along with the weather, it may slow down operating times.

The model we saw on demo was fitted with a single-cylinder Cub Cadet Infinicut floating head unit with grass box. This prototype does not offer automated emptying of the grass box at present, but this feature will be in place for the official launch of the machine in 2022.

Questions to be answered

During the presentations several questions were asked by the professionals in attendance. I was keen to know the price of the machine and its running costs. The company stated that the unit is currently priced at around £75,000 and there are some other operational costs such as servicing charges, software updates and battery replacement fees to add on.

As the unit is driven by six batteries, and each one comes at a cost of around £2,000 each, it's a staggering £12,000 for a set of additional or new batteries! No doubt by the time a user takes all these costs into account, they may be looking at a figure of around £100,000 plus.

A lot of money, but the company stresses it is the longer-term gains from saving on labour, reducing running costs and reducing emissions that may influence customers to invest.

Speaking to a number of the professional groundstaff

during the day, there were still a lot of questions to be asked and issues to be fulfilled before they could see it as a viable alternative to the current machinery they use.

Several told me they would be keen to see how the company design and implement the self-emptying grass box system and, more to the point, where and what type of dumping area would it need?

Also questioned was the issue of the wheels and the affect they would have on the pitch. Some said they would much prefer a set of front/rear rollers fitted to the RoviMo.

Another question raised was what configurations and size of the cassette systems would be available, and at what cost?

One of the ground staff did comment that it would be a good acquisition for the maintenance, essentially the brushing and cleaning, of artificial pitches – something he described as one of the banes of his life. Artificial pitches experience a lot of use and wear, and regular brushing with a robotic machine would be a godsend, especially if it freed labour resources up to spend more time on the natural turf pitches.

It appears from the information provided by both companies that there will be further developments for this machine. They are looking to provide a wider range of implements and tools to make it increasingly versatile and effective in helping to reduce valuable labour time.

The company also spoke of the opportunity to provide many more modules that could include rotary mowing decks, triple mowing decks, brushes, hoovers, fertiliser spreaders, a sprayer and other UV and ground securing devices. However, the first hurdle will be the need to produce a self-emptying grass box.

The list could be endless, but for me, this new concept is all about freeing up labour to do other essential tasks, not about reducing staff levels.

At present I believe the cost of investment in the unit would be a tight call, even at the level of the Premiership. £100,000-plus could, at current pay levels, effectively pay for three or four additional staff members. However, the bigger picture is smarter ways of working and helping to drive down carbon emissions, making the work place a safer environment.

These new technologies are now moving at a great pace and with the constant battle to reduce carbon emissions and to be environmentally-friendly, the days of petrol- and diesel-powered machinery will surely be on a steeper decline.

The key message with the RoviMo was all about improving efficiencies and, in the longer term, making the working environment a more attractive place to encourage the next generation of grounds professionals to come and work in the diverse and challenging sports turf industry.



Flurin Arner explaining the functionality of the RoviMo mower



The RoviMo batteries cost around £2,000 each



RoviMo – precision engineering