Oxbotica: Building an Autonomous World

Oxbotica is a British pioneer in the autonomous vehicle arena. The company has maintained a low profile to date but are now accelerating their growth on the back of strong commercial success. Paul Gillespie, spoke with Dr Graeme Smith, CEO.

Why are Oxbotica focussing on different types of autonomy when most companies are just specialising on autonomous cars?

Our technology works, in quarries and mines, supermarkets and warehouses as well as in passenger cars. The automotive domain isn't realistically going to pay off until the mid-2020s which for a small company is a long time to wait for real revenue. The diversity of our tech team means we have the competencies and capabilities to address more than one vertical.

Is full, level-five autonomy still the holy grail, or is the aim more about being able to drive, write text messages and eat lunch while on the road?

It depends on the market. We'll definitely see progressive improvement towards full autonomy in the cars that you and I drive today. Achieving full autonomy in this area however, means you can start to fund fleets of autonomous vehicles. Mobility as a service will be the big societal game changer.

We've been approached by companies in China, for instance, that are building greenfield cities, with fully autonomous cars. There'll be no traffic jams, parking, garages or pollution, and all vehicles will be owned by the city.

Could this transition create a potentially chaotic mix of autonomous and standard cars on the roads?

It could, and when we get to that point, I don't think it'll be long before we start to see exclusion zones in the middle of cities where only autonomous vehicles can ride. Discussions have already started on how we need to redesign cities to enable more autonomy.

In the short term, I think we'll start to see shuttle-size, driverless vehicles – maybe 4 to 8 passengers – working in defined areas, where there is no interaction with high-speed traffic. They might be in retirement communities, town centres and maybe some city centres with bus lanes. Besides that, we're looking at mixed usage, for example, in a warehouse environment where forklift trucks will be fully autonomous, while people carry out the more specialised tasks.

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What has Oxbotica achieved so far?

We're the only company in the UK demonstrating full autonomy on the public road. We've already got a vehicle running around Oxford, for which we've provided the computers. By the middle of the year, we'll have more vehicles in Oxford and will have expanded into London. We've also now licenced our technology stack to several major automotive companies. Over the next eighteen months, we plan to further develop the software and its capabilities, but our focus is very much on tight urban environments. Oh, and we're just preparing our first car for California.

A major USP is the small amount of processing power Oxbotica's software needs – how are you achieving such a small footprint?

We're unique in that we use camera based localisation rather than GPS. In fact we don't use GPS at all because it doesn't work well in cities, or places like under-hotel parking and garages. We use LIDAR to detect obstacles and people and we have our own patented, low-cost vision-based system, which can localise down to a couple of centimetres. We're getting a lot of interest in this because it uses a camera, which most cars already have anyway and therefore it's only software.

Is Oxbotica's positioning simply a level-five solution for car companies?

Our product is an autonomy platform – with an operating system and a suite of modular autonomy applications that we'll integrate with our customers' vehicles. Unlike other companies, we're not fixated on offering a full monolithic system to customers when we can licence small pieces of IP, localisation is just one part of our stack. Not all our customers are just looking for full autonomy solutions and we're comfortable engaging with those that aren't.

We have about 80 pieces of IP in our solution, and we like to let customers have access to all of it, before helping them decide which bits of the solution best suit their needs.

What are your plans for Oxbotica in 2018?

We will be accelerating the growth of the company, probably doubling headcount to over one hundred. We will also see more autonomous pilots underway across a number of sectors with another 10 cars on the road in London plus a very large off-road project. An exciting year ahead!

For more information on Oxbotica; www.oxbotica.com