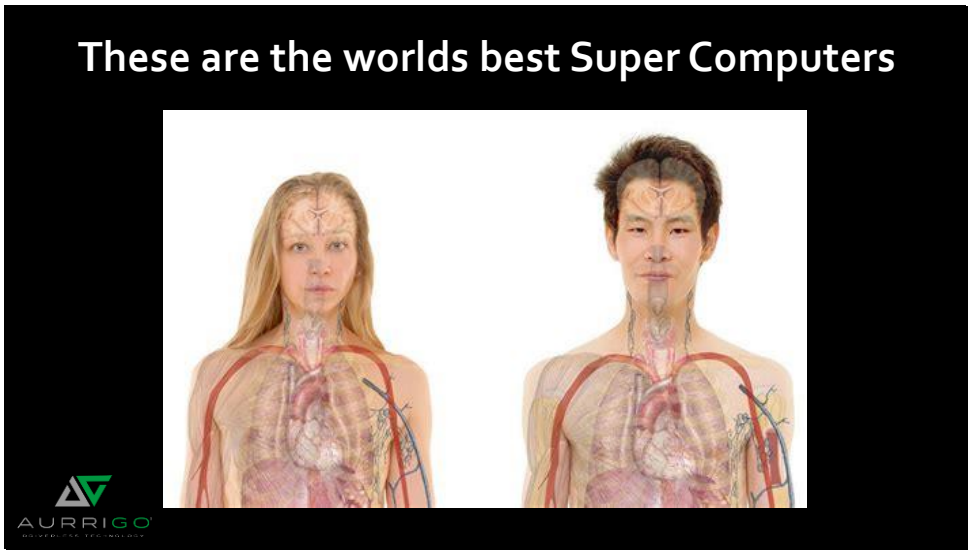
Slide 1

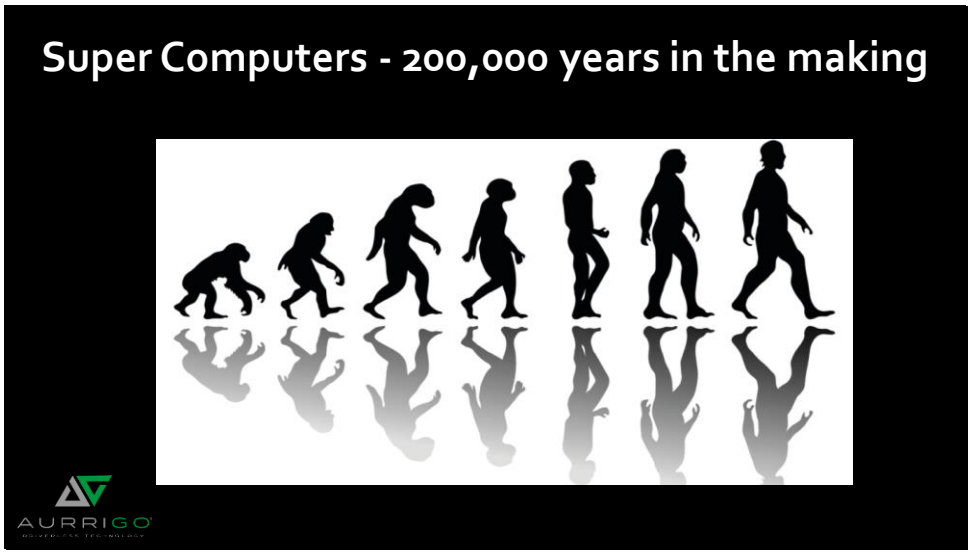
Good morning / afternoon
I am very pleased to be presenting to you today and thank you to XXXXXX for that very kind introduction.

Slide 2



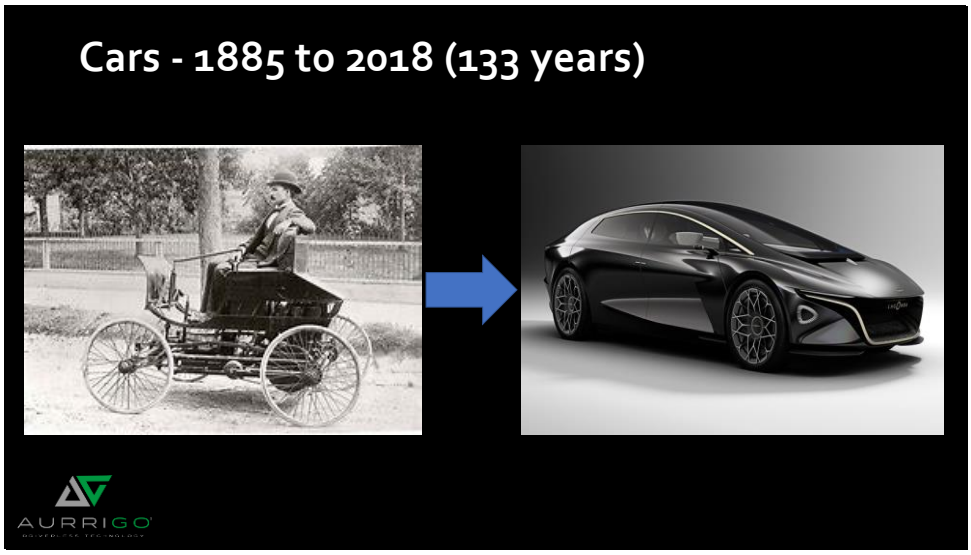
Aren't we just amazing!
The best super computers in the world.
We can think, dream, invent, communicate, reason.
We are fitted with amazing sensors – Take vision and hearing.
You can see me and hear me presenting to you but you don't have to think how it happens – it just does
Millions if not trillions of data processed every second by our brains.

Slide 3



To get to this point though has taken a very long time – 200,000 years of evolution.
And unless you believe in Aliens we are the top species on the planet if not the entire galaxy.

Slide 4

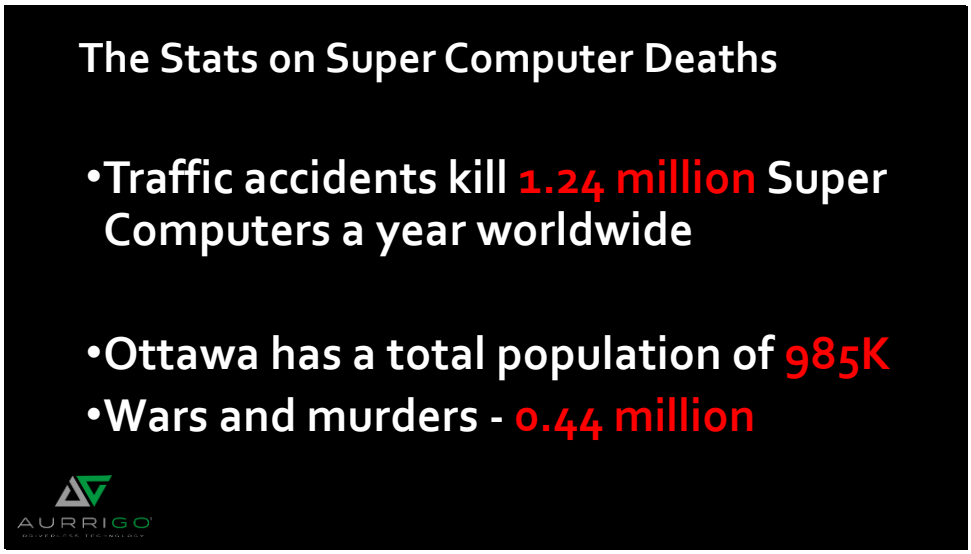


However its only been very recently in our evolution that we have created mass mobility.
1784 for the train (234 years ago)
1903 for the plane (115 years ago)
1885 for the car (133 years ago)
Today the car is a very sophisticated machine with numerous and growing feature complexity all as a result of electronics and components which only started their development around the 1930's (88 years ago) - again very recently in our evolution.
I can remember in the mid 80's working at Rover Cars when my team invented a door courtesy light that slowly faded out after closing the door – we spent hours opening and closing doors to see our brilliance – that seems so trivial now but was only 30 years ago.

Slide 5

But for all the sophistication and improved safety of cars today, they are still in the hands of us super computers who are not as good as they could be, even though sometimes they think they are.
We are so good we can do many things at once and this leads to occasions when we just make mistakes – genuine ones. 'I didn't see the bike and pulled out' – boom dead, 'I was talking to a passenger or something similar and just lost concentration' boom dead, 'I was so bored I decided the car could drive itself and fell asleep' boom dead, 'I decided that drinking wouldn't effect my performance behind the wheel and thought that actually I was a better driver' – boom dead.

Slide 6

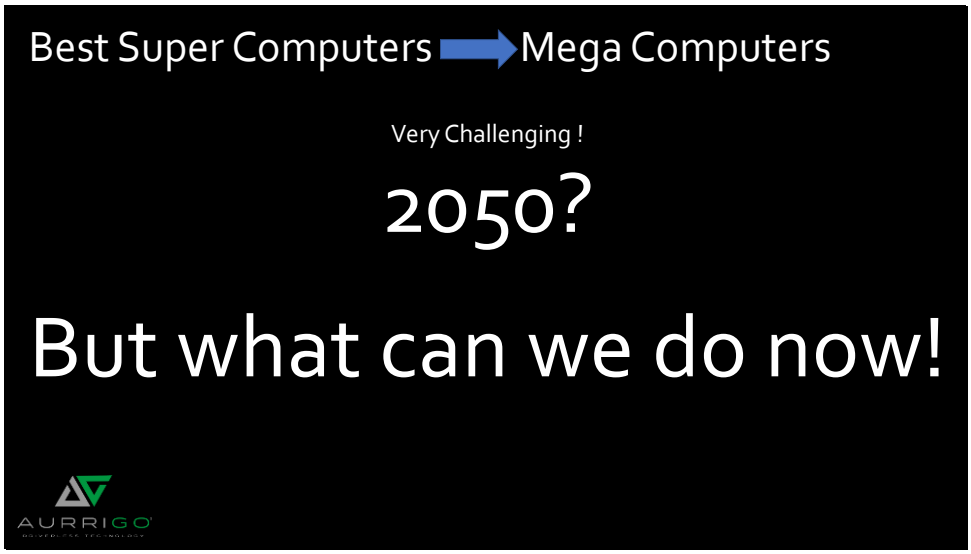


The stats on our driving failures, as so called ‘super computers’ are truly shocking. 1.24m of us super computers, for all our brilliant skills and intellect are killed each year and many more millions are injured or have life changing experiences.
That’s more than the population of Ottawa being wiped out each year.
Truly shocking.

Slide 7

While we super computers have been striving for mass mobility we have also been creating hugely complex environments to live and work in. These huge cities contain millions of us and the growing personal use of transport is leading to congestion, pollution and lost time / money. But to retro automate any of these environments is very difficult – its all been designed by us super computers to move around because there s no city or road junction that we aren't able to negotiate – look at those junctions, easy for us but very difficult for a computer / machine to do what we do.

Slide 8

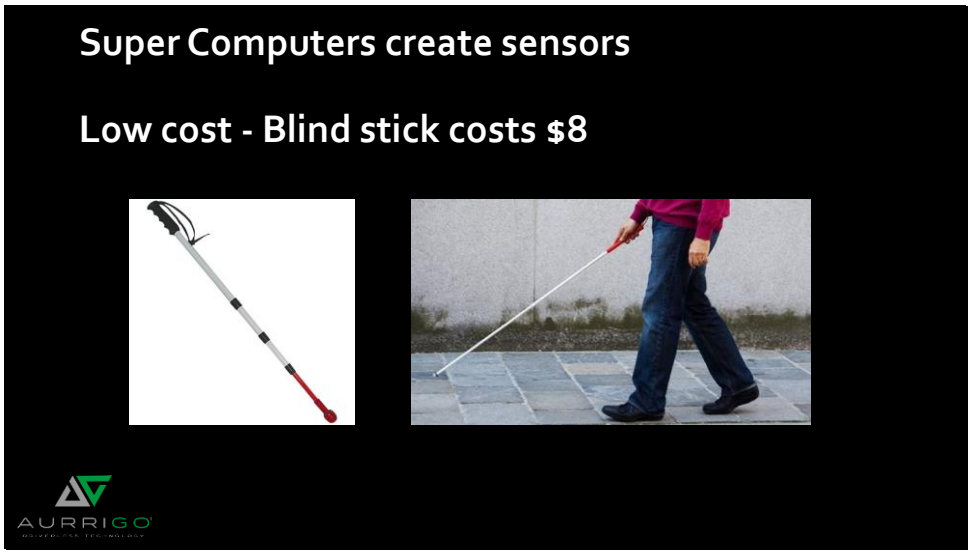


Although the challenge of creating a MEGA computer / machine capable of doing what we do now, but even better is a huge task but it is a goal well worth the effort – to save over 1M people each year and more that are injured has to be worth it.
But these gains will come over a long period.
Not until there is a majority of cars with autonomy versus not, and not until there are more connected cars to each other and not until there are more connected to the environment will we finally see the massive gains we strive for – 2050?
There are though some areas where autonomy can have a real societal benefit and they are right now!

Slide 9

There are over 70 notifiable conditions described by the UK driving authorities that may prevent people holding a driving licence and using a car.
You might be blind/partially sighted, have a lack of mobility condition, you might have a condition such as epilepsy or some form of neurological condition.
You might just be to old!
All of these conditions result in reduced mobility and choice of transport, especially where it is needed most which is quite close to home.

Slide 10



Because we are such good super computers, we have found ways to combat some of our conditions to allow more mobility.
Take this very low cost sensor – its just a stick – but in the hands of a trained blind or partially sighted person it provides a 3D map of around 2M cube in front of the person – enough to allow that person to move around.

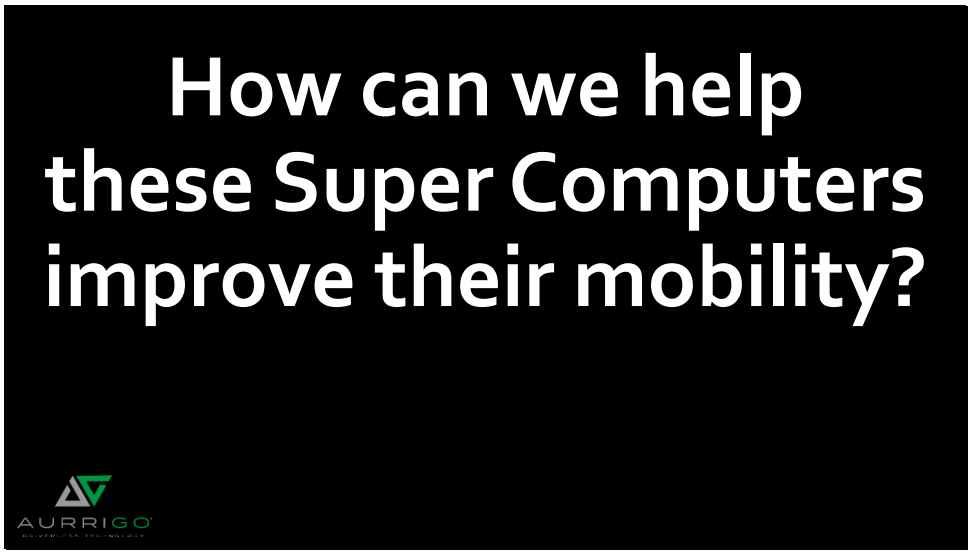
Slide 11

At the other end of the scale are high tech sensors – meet Rex
25 months to calibrate, costs $25K to program (plus on going bills, vet vists and food) but he is a super sensor – able to see and hear, he can navigate the complex environments us super computers have developed with confidence. He even works in the snow!
And he never gets distracted or looses concentration……

Slide 12

Well not many times!

Slide 13



Note: Just read this slide out

Slide 14

There are a number of locations in pretty much every town/city on the planet where short distance, low speed autonomous mobility solutions are possible.
These include:
Retirement villages
Shopping Malls - indoor and out
University Campuses
Housing Estates
Airports
New Eco Town Developments etc.

They are often called first and last mile areas where conventional transport like taxis, buses etc don't service the requirements needed – mainly due to the excessive cost of human labour to run them, making them non – viable.

More and more of our urban areas are being designated as pedestrian only as we try to remove the car and improve our air quality – in 2019 London are looking to close Oxford Street permanently to traffic – how will people get around who cannot just walk to places?

Slide 15

It is these first and last mile mobility requirements that my company, Aurrigo, have set out to conquer by developing a range of suitably equipped autonomous EV Pods that can do the job and be cost effective.

Note: Now read spec above.

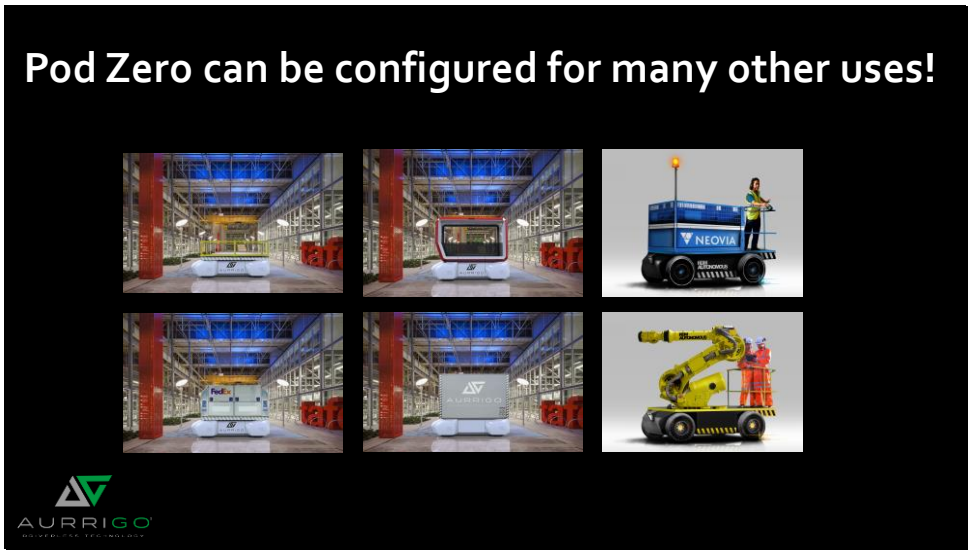
Aurrigo has developed and manufactured everything you see here including the ACS.

Pod Zero stands for zero driver, zero collisions and zero emissions and it is ideal for inner city operations in pedestrianised areas for both abled and disabled users.

Slide 16

Dog friendly
Braille door entry
Hi-Viz interior fittings and edges.
You can even take your low and high tech sensors with you.
Our pods have been developed with help from the guide dogs for the blind in the UK to be easy to travel in, dog friendly and enable both blind and partially sighted people to use with ease.

Slide 17



Pod Zero can be configured for many other applications like cargo, logistics and special platforms but that’s a talk for another time.

Slide 18

Aurrigo has 4 Phases to our product development - Simulation – Indoor testing – Outdoor testing – Real world demonstrations and implementation
So what have we been doing to develop this first 4 seater pod –

Well its all about SAFETY, SAFETY and SAFETY

5 years worth of test and development.

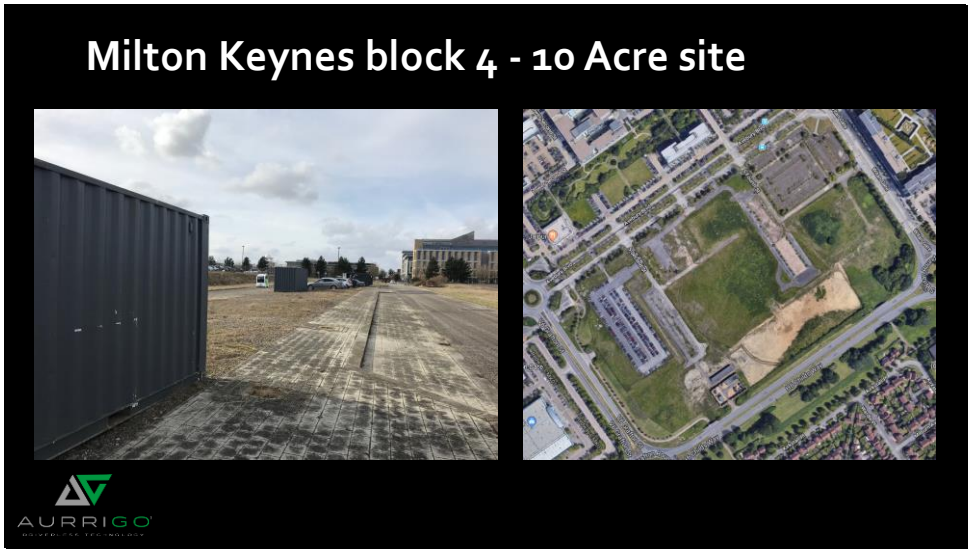
There are 3 things you need to know:
Where am I?
What's around me?
and what do I need to do next?

Firstly simulation - here you can see our £2M JV with Warwick University to run our pods in a 360 degree full rolling road simulator.

Slide 19

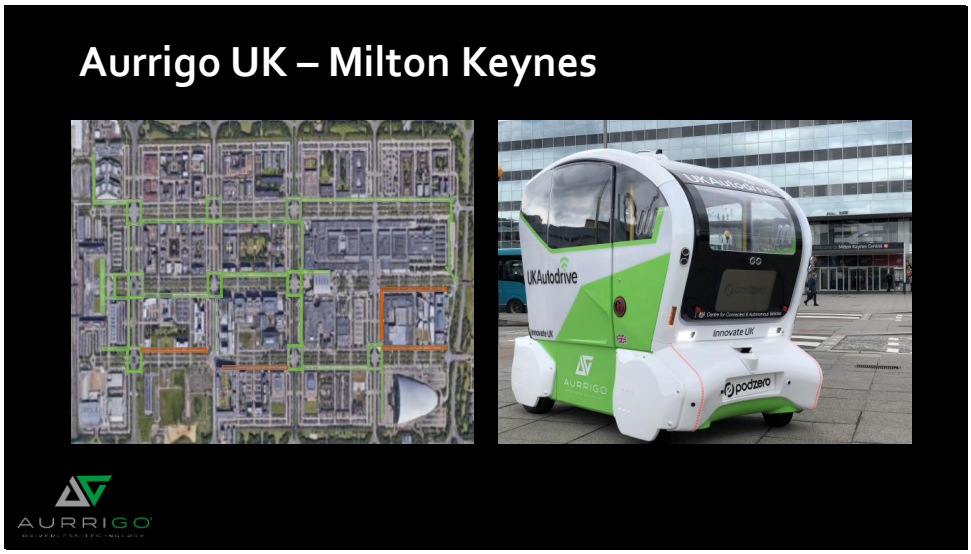
Next, indoor testing - here you can see our fully functional 10,000 sq. ft indoor test centre complete with remote control room which Aurrigo has also developed along with a fleet management back office and customer facing App.
This indoor facility is in collaboration with Jaguar Land Rover. Between us we are developing the HMI required, both for internal passengers and the external pedestrians to be aware and be comfortable with how the pod is operating and what it might do next.

Slide 20



Now outdoor testing - here you can see our 10 Acre outdoor facility based in Milton Keynes which has road layouts , pod stops, a fully functioning control centre and many other features to enable us to perfect pods before deployment into real world applications.

Slide 21



Now for some real applications that are happening today!
This is the £20M government funded project in Milton Keynes – A picture of the city centre is shown on the LHS which is 3km x 1.5km and the green lines show where the pod will be traveling – along pedestrianised areas – from the railway station on the LHS through the business district and over to the shopping, recreational and housing areas. From June this year onwards Aurrigo will deploy up to 40 pods operating in this area 5days/wk and 6 hours/day carrying real passengers.

Slide 22

The Cambridge guided busway is a segregated area running conventional buses during the day but due to human running costs is not viable from 10pm to 6am. However the busway connects with some of Cambridge's most important and expanding areas such as Addenbrookes' Hospital and the Genome Park – How do patients nurses and doctors travel between 10pm and 6am? – well very badly indeed, so Aurrigo will implement autonomous pods during those periods, 7 days a week and we will introduce our new 15 seat pod you see on the RHS later this year. Eventually, even in the normal working hours we hope to see Aurrigo pods replace existing buses on that route.

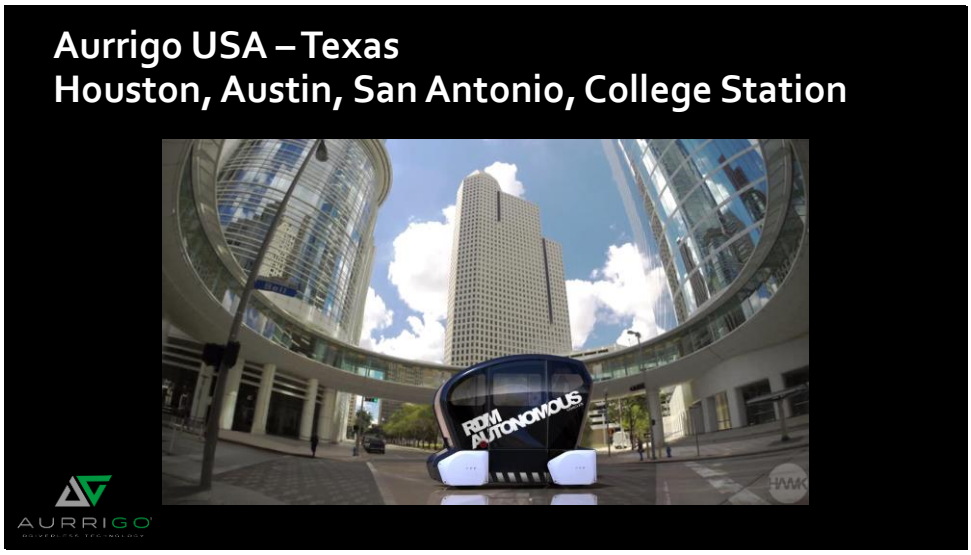
Slide 23

Aurrigo opened its first international operation in Adelaide in early 2017 and now has a fleet of 3 pods operating in collaboration with Flinders university at the Tonsley innovation precinct. From a standing start we won $1M of SA government funding and now have a team of 7 staff.

Slide 24

From Aurrigo's base in Adelaide we successfully teamed up with IRT, Australia's leading provider of retirement homes and villages and our first pod will go live at their Kangara Waters retirement village in June this year, transporting elderly people from their homes to shops, meeting points and recreational areas.

Slide 25



Our second international office was opened in Houston in March 2017 and we are currently closing in on a number of collaborative projects both in Texas and in a number of other states.

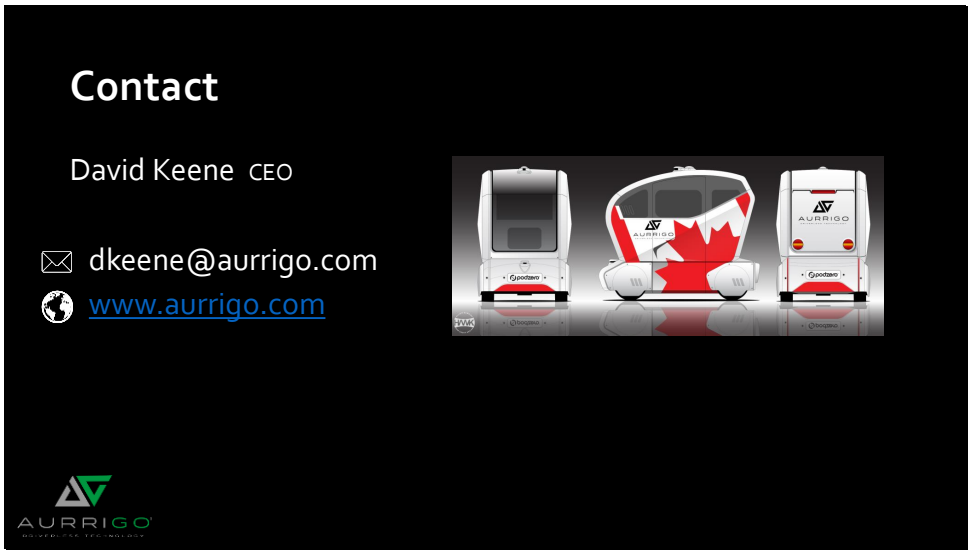
Slide 26

At the start of 2018 Aurrigo and Moovita signed a collaboration agreement to develop pods for the Singapore, Malaysian and Indian markets.
Our first 4 seater pod leaves this week on route to Singapore, with orders already for 2 further pods and a 15 seater later this year.

Slide 27

I am pleased to announce the opening of Aurrigo's 3rd international office, based right here in Ottawa and I would like to thank our friends at Invest Ottawa for all the help and advice provided to us to make this possible. For this conference we have brought along a static show pod which is located in the hotel foyer and I can announce today that real, fully functional pods will be here soon!

Slide 28



Finally I would like to encourage everyone in the room to not just think about autonomous cars but to think about mobility for everyone!

Have a great day, a great conference and **Thank You** for listening to me.