Ultra Global PRT
Low cost transport for a sustainable future

www.ultraglobalprt.com
Ultra personal rapid transit (PRT) is a new and innovative on-demand system for developed or urban environments. It is designed to meet the need for congestion free, multi-origin, multi-destination public transport.

Using small, driverless electric vehicles that run on guideways, the lightweight and flexible nature of the system enables it to be retrofitted into a broad range of environments and provide transportation that is environmentally friendly and operationally efficient. Ultra has been designed with reliability and safety built-in as standard to ensure the comfort and security of its passengers.

Conventional forms of public transit require passengers to collect in groups, wait until a large vehicle with a fixed schedule arrives, and travel on a predetermined route stopping for additional passengers on the way. In contrast, Ultra offers personal transport with no waiting, taking passengers non-stop to their chosen destination.

Delivering sustainable personal transport

Ultra personal rapid transit is

- On demand transport – no waiting
- Sustainable
- Reliable
- Attractive to the user
- Inexpensive
- Easy to install
“You have built a first class exemplar of what an autonomous transport system can achieve”
Former President of the Royal Academy of Engineering
Over 15 years of product development

The Ultra team comprises a balance of technical and operational experience and are recognised leaders in the transport systems industry.

Originally an engineering research project to devise the optimum urban transport solution for the 21st century, Ultra began development in 1995 in association with the University of Bristol.

By 2001, the company had established a 1km test track in Cardiff, where it has conducted trial runs of several generations of PRT vehicles.

In 2000, Ultra won the UK government Innovative Transport contract resulting in £2.7m funding for the design and development of a full prototype. Three years later and the Ultra pod system was approved for public use by the UK Regulatory Authority (HM Rail Inspectorate).

In 2005, Ultra was chosen to build a pod system at London’s Heathrow Airport; since 2011 this system has provided over 1000 passengers per day with a vital link from the T5 Business Car Park to the terminal.

In May 2012 Ultra celebrated its first anniversary of passenger service at Heathrow, carrying 370,000 passengers on their no waiting, non-stop journey to Terminal 5.

Now in 2012, the company is exporting the Ultra technology to India as part of the Amritsar PRT project.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1995</td>
<td>Founded, Bristol University</td>
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<tr>
<td>1999</td>
<td>UK Department for Trade: grant to build prototype</td>
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<tr>
<td>2000</td>
<td>Winner UK DfT Innovation competition</td>
</tr>
<tr>
<td>2002</td>
<td>Test track launch by Deputy Mayor for Environment</td>
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<td>2003</td>
<td>First safety clearance — UK Rail Inspectorate</td>
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<td>2003</td>
<td>BAA Transport Study; PRT beats APM and bus</td>
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<td>2005</td>
<td>Ultra wins BAA PRT vendor competition</td>
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<tr>
<td>2010</td>
<td>Commissioning trials with passengers.</td>
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<tr>
<td>2011</td>
<td>Heathrow pod opens for full passenger service.</td>
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<tr>
<td>2011</td>
<td>Foundation stone laid in Amritsar, India.</td>
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<tr>
<td>2012</td>
<td>Heathrow pod 1st year anniversary. 370k passengers.</td>
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</table>
“This innovative system forms part of BAA’s plan to transform Heathrow...it offers a completely new form of public transport – one that will deliver a fast, efficient service to passengers and bring considerable environmental benefits, saving more than half of the fuel used by existing forms of public or private transport”
Max Vialou-Clark, BAA Heathrow Retail Services Director
Applications in major locations worldwide

From busy town centres, to large, open sites such as campus parks, Ultra pods provide a highly flexible system that offers almost limitless application possibilities. In early 2011, Heathrow, one of the world’s busiest airports, became home to the first commercial Ultra pod system.

The system complements existing forms of public transport by providing an on-demand and direct service over a localised area. Virtually silent, the system is also suitable for integration into residential estates.

Ultra now has two established systems in operation; the company’s Cardiff test facility, and the newly opened system at London Heathrow airport, with a third currently being constructed in Amritsar, Northern India. PRT systems are being actively considered for applications around the world, with developers, local authorities and private companies all keen to take advantage of the benefits this innovative new form of transport provides.

Heathrow T5

With over 70 million passengers passing through each year, the airport at Heathrow is one of the world’s busiest.

Ultra’s first commercially operational pod system provides 1000 passengers per day with a vital link between the T5 Business Car Park and the terminal itself. A powerful example of the system’s benefits, the small footprint of the Heathrow pods system enables it to fit within the tight constraints imposed by the airport infrastructure.

Commissioned by Heathrow Airport operator BAA, the system was completed at a cost of £30M, and consists of 21 vehicles, a total of 3.8 kilometres of one-way guideway, and three stations – two in the T5 Business Car Park and one at Terminal 5.
**Cardiff, UK**

The company’s test track facility was established in Cardiff, Wales, in June 2001, with funding from the United Kingdom Department for Environment, Transport and Regions, following Ultra Global’s (then Advanced Transport Systems) winning of the innovative transport competition.

This facility contains all the features expected in a typical application, elevated sections, sections at-grade, various banked and unbanked curves, inclines and declines, merges and diverges and a station. The total length of the guideway is about 1km, and the completed works cost approximately £250k.

Ultra completed the initial phases of vehicle prototype development and gained consent from the United Kingdom Rail Inspectorate to carry members of the public at the test track in Cardiff in 2003. Following this approval the Ultra pod system underwent a comprehensive series of successful passenger trials, and was used for final commissioning and qualification trials of the pods that have now entered commercial service in the Ultra system at Heathrow T5.

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**Amritsar, India**

Ultra Fairwood, the collaboration between Ultra Global Ltd and Fairwood PVT Ltd created to bring the Ultra technology to Asia, has been awarded a contract for the world’s first urban PRT system in Amritsar, India.

Amritsar represents the first urban application of PRT, transporting 50,000 passengers a day on an 8km / 4.8 mile elevated guideway in over 200 pods between seven stations, making it the world’s largest PRT system to date.

Financed entirely by private funding on a build, own, operate transfer (BOOT) basis, passenger services will go live in 2014. This demonstrates that large scale urban PRT can be delivered on a financially viable, fare- and advertising-based model and offer very real returns for financial backers.
From the passenger’s point of view the system is uncomplicated and intuitive; a touch screen panel enables them to choose their destination while an automated voice-over talks them though the process. Once on board they can relax as the vehicle takes them straight to their destination. The use of off-the-shelf technology, mostly from the automotive industry, provides a mature, well proven and reliable system.

Ultra offers security and convenience by providing a non-stop journey that gives passengers exclusive use of their vehicle. Each pod is monitored by CCTV and a dedicated team of controllers are on hand to help at the push of a button. Fully compliant with disability legislation and with a total carrying capacity of up to 450kg, the Ultra pods are perfectly suited to accommodate wheelchairs, prams and bicycles.

No waiting, no stopping, no congestion

The components of an Ultra system are

Pods
- Small, fully automated, battery-powered electric vehicles, with zero on-site emissions.

Infrastructure
- Lightweight guideways and compact stations are low cost & can be routed where needed.

Control system
- You don’t wait for vehicles – vehicles wait for you. No transfers, no routes to memorize.
High value, low cost, integrated solutions

Ultra pod systems offer a greater overall return on investment at local level than other forms of integrated transport, such as monorails or trams, especially when the opportunities for capturing land value uplift through integrated planning are realized.

As the Ultra pod is lightweight & has the ability to navigate tight corners, it runs on a guideway that is correspondingly light & easily routed where needed. This makes the system inexpensive to install compared to larger-vehicle systems with much heavier infrastructure. In service, Ultra provides a transit capacity more flexible and better matched to expected demand levels, saving on operational & maintenance costs.

Ultra is particularly valuable in new developments due to the ease of capturing non-fare box sources of value, and the beneficial impacts on broader planning & design issues. For example, an integrated PRT system can reduce land requirements for an office park development by 40% by enabling consolidation of parking facilities—an opportunity for significant capital cost saving or additional revenue generation.
Outstanding service at Heathrow

The Heathrow Pod system uses a 21-vehicle fleet to provide an on-demand service between Terminal 5 and Business Parking for T5, with a non-stop journey time of 5 minutes. Average waiting time for a vehicle to arrive is only 10-15 seconds, with 80% of passengers having no wait at all.

Our first year in full passenger service (May 2011-2012) was a great success, and achievements included:

- 370,000 passengers carried
- Over 99.0% availability
- Removal of over 50,000 bus journeys, and corresponding savings in CO2 emissions
- Reduced journey time; non-stop service with no waiting

What do our passengers think?

“Landed and used the very cool Heathrow pod – they’re even better to use – quicker, easier and greener that the buses to/from the car park”

“I love these things. Best airport transfer devices ever”

“Awesome sci-fi system”

“Pass on my thanks to the team who designed this and also very importantly, the person(s) at BAA who approved this bold leap. It’s absolutely commendable to take charge and move forwards with a new transport system”

<table>
<thead>
<tr>
<th>System</th>
<th>Availability</th>
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<tbody>
<tr>
<td>Heathrow Pod</td>
<td>99.0% (2011-2012)</td>
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<tr>
<td>Heathrow Express</td>
<td>98.0% (2010/2011)</td>
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<tr>
<td>London Underground (LUL)</td>
<td>95.6% (2010/2011)</td>
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<tr>
<td>Docklands Light Rail (DLR)</td>
<td>97.4% (2010/2011)</td>
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<tr>
<td>Tramlink</td>
<td>98.6% (2010/2011)</td>
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<tr>
<td>Overground</td>
<td>94.8% (2010/2011)</td>
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Figures from Transport for London

Average waiting time for a vehicle to arrive is only 10-15 seconds, with 80% of passengers having no wait at all.
Easy to install — no disruption to airport operations

The disruption caused by PRT is minimal, due to the small scale of the infrastructure which can be largely prefabricated as modules off-site. The Heathrow system crosses 2 rivers and 7 roads, crosses green belt land, negotiates aircraft surfaces and glide-slope protected airspace, bridges in-ground services, and conforms to T5 architecture. It was installed with no disruption to the airport operations. This ability to retrofit into existing environments is a key advantage of PRT, especially in space constrained locations where it becomes the only feasible transport solution.
Winners of multiple awards in 2012

Ultra Global Ltd has had a fantastic start to 2012, being nominated for and achieving a number of awards to date. The transport and parking industries are recognising the Heathrow pod PRT system as “groundbreaking”.

The Heathrow pod system was named as the Most Innovative Transport Project at the London Transport Awards. Ultra Global Ltd has also been recognised in the British Parking Awards as well as the Air Rail News Awards, picking up a number of accolades along the way.

Ultra received some excellent feedback from the judges’ panels, highlighting the level of innovation and hard work that’s gone in to developing the system:

““The Ultra Heathrow Pod stands out in terms of its technical, customer and business case innovation. The potential is huge and the way it has been implemented is an excellent example of how to test a new concept.”

“The Heathrow PRT is the best innovation ever in the support of airport’s needs. ULTRA should be proud to be at the forefront of an initiative that will transform travel globally in this century.”

“For years this innovative project was presented at Transport Conferences and see, now it is reality! And above all it works perfectly. Congratulations!! A true case of perseverance!”

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[Image of award certificates and logos]
“This is amazing - a well-engineered, ready-to-go public transit system that can solve many urban transport problems. I am going back to tell my colleagues that they must come and see Ultra”
Representative from a major transport agency
Excellence in Engineering & Operations

Ultra Global Ltd is the world leader in PRT engineering and operations. Beginning the Heathrow pod project largely as a Research and Development-focused organisation, Ultra has built significant project delivery skills. Successful completion and operation of Heathrow Pod gives Ultra a first-class showcase, and with it a unique opportunity to take the product forward to new projects around the world.

Ultra is committed to operating with safety as its key priority; in its transport products, in the design, consultancy, and operating services it provides, and in the operation of the business. The company is certified to ISO9001:2008 status, and will design and deliver transportation solutions and services in an environmentally sustainable and a socially aware manner.

System Engineering
- Requirements capture
- System layout
- Simulation and optimisation
- Subsystem specification
- Integration, test and commissioning

System Control
- Central control system design, development and implementation
- Control algorithm development

Vehicle Control and Integration
- Vehicle control system design, development and implementation
- Vehicle electrical systems integration

System Safety
- Quantified Risk Assessment
- Safety function design
- Safety case development

System Operation
- Full mobilisation from planning & set-up through recruitment, training, testing, reviews and audits
- Operational safety