

The Track to Suncheon: Making APMs Intelligent...



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VECTUS Ltd was incorporated in 2005 and now maintains fully staffed offices in Seoul, Sweden and the UK. The company is a subsidiary to POSCO ICT, South Korea.



VECTUS is one of the world's most advanced fully automated, fully networkable, intermediate public transit technologies.



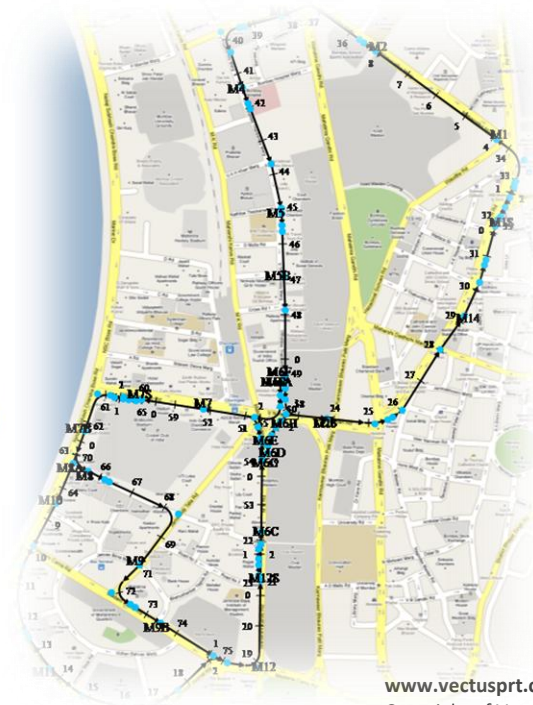
A full scale test track demonstrating all the elements of a commercial application has been in operation in Sweden since 2007. It is fully certified and approved by the Swedish Rail Agency.



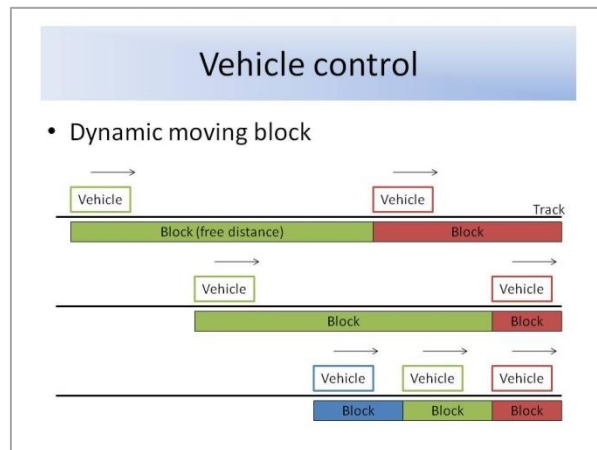
VECTUS vehicles offer high transport capacity, despite their small size, because they can be networked, run in mixed mode (with both small and large vehicles) and achieve very short headways.



As an example: if 40 GRT vehicles operate around a 7km track in 2 loops at circa 30-40 second headways (and every second vehicle changes loop at the centre crossing), the waiting time for any vehicle to any destination is less than 1.5 minutes. Maximum travel time to any destination is 5 minutes and the system can move up to 10,000 passengers per hour.



The safety-approved control system has been specially developed by VECTUS and incorporates unique features such as *distributed*, *asynchronous* and *dynamic moving blocks*. The flexibility of this approach ensures high passenger throughput by condensing headways, reducing dwell times at stations and also allows for easy system expansion.



Light steel tracks are mounted onto concrete beams providing an optimum, low-friction interface to the vehicles. The track has no moving parts; all switching is done on-board the vehicles.



The first commercial VECTUS system has been built in Suncheon Bay, South Korea. The Suncheon coastal wetlands are a world class attraction, famous for the migratory hooded crane.



The Suncheon Bay VECTUS transit will provide quiet, comfortable and eco-friendly transport for the three million annual visitors to the reserve.

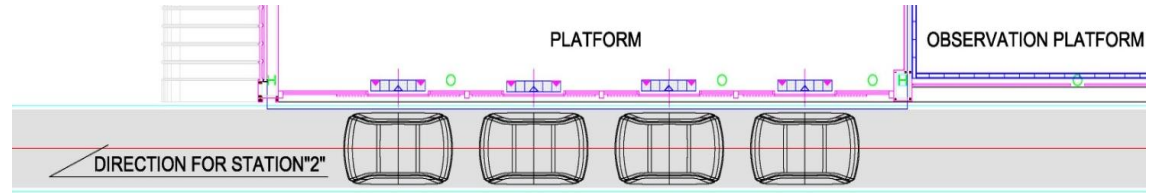


40 vehicles will operate along 5kms of elevated, double tracked guideway. Being a region of seismic activity and typhoons, combined with poor ground conditions, extensive piling has been required.



Station 1





Stations have 4 in-line berths



Vehicle styling by Pininfarina and TDI



TDI TRANSPORT DESIGN
INTERNATIONAL



Test loop at Station 1



500vdc continuous current collection (no batteries)



Station 1: with main depot, workshop & control room



International Garden Expo: view from Station 1



Suncheon vehicle performance

Method of propulsion	<i>linear induction &/or rotary motors</i>
Power transfer	<i>continuous current collection</i>
Guidance principle	<i>captive to steel track with switch wheels</i>
Emergency evacuation	<i>escape doors on both sides of vehicle</i>
Dimensions (mm)	<i>3740 long x 2100 wide x 2500 high</i>
Door opening	<i>900 wide x 1950 high</i>
Number of passengers	<i>nominal 6-8 seated + potential for 6 standing (full height)</i>
Wheelchair space	<i>RVAR compliant, all vehicles</i>
Laden weight	<i>2500 kg (with seated passengers)</i>
Speed	<i>< 70kph</i>
Max speed in curve	<i>R20m=16kph/R50=26kph/R100=36kph</i>
Acceleration/deceleration	<i>1.2m/s² typical</i>
Emergency deceleration	<i>5m/s² max</i>
Energy consumption	<i>0.24kWh/km @ 30kph (typical laden)</i>
Air conditioning	<i>full HVAC system on board</i>
Safety philosophy	<i>designed to international rail standards</i>





Generic infrastructure & control

Track construction	<i>steel rails on steel or concrete beam (at grade & elevated)</i>
Gradient	<i>< 10%</i>
Minimum radius	<i>5m at centre line</i>
Guideway width	<i>1400mm typical</i>
Platform gap	<i>< 30mm</i>
Berth concept at stations	<i>in-line</i>
Max throughput per berth/hour	<i>160-200 small vehicles</i>
Control concept	<i>asynchronous</i>
Control topography	<i>distributed</i>
Automatic vehicle protection	<i>radio based dynamic moving block</i>
Emergency recovery	<i>push/tow to nearest station</i>
Peak line capacity (PRT)	<i>< 7,200 passengers per hour (10,000 with standees)</i>
Headway	<i>3-4 seconds</i>
System certification	<i>Swedish Rail Agency (full safety case)</i>

Note: *PRT and GRT type vehicles utilise exactly the same track and infrastructure*

From deserts to ski resorts, VECTUS can operate in a very wide range of climatic conditions.



VECTUS looks forward to meeting *your* transit requirements...

