



**21st CenturyTransport**

## **FOR IMMEDIATE RELEASE**

Fort Worth, Texas, March 19

Fort Worth, Texas, inventor Kirston Henderson of MegaRail Transportation Systems has been awarded a patent by the US Patent and Trademark Office for major breakthroughs in high-speed magnetic levitation (maglev) transportation technology. Breakthroughs possible with the approach include true all-weather operation, an 85% reduction in maglev system cost, and ability to avoid unnecessary station stops for faster service. The Fort Worth company plans to develop a low-cost, all-weather 150 to 200-mph transportation system based upon this approach. The company will raise additional capital to fund development through sale of stock. The patent (number 6,357,358) was awarded on March 19, 2002. The company founder and inventor also holds patents for the MegaRail® and MicroRail™ systems that are currently in development and has several other patents pending.

The patented maglev system uses strong permanent magnets located on vehicles and uses passive levitation rails in the guideway. The combination of (1) permanent magnets instead of expensive electromagnets (2) passive guideway and (3) full-speed, car-based switching will allow the company to develop a high-speed inter-city transportation system that is about 85% lower in cost than current maglev train systems. The system employs enclosed levitation rails that fully shield the suspension magnets, levitation rails, electrical power supply rails and control and communication elements both from the effects of weather and possible damage from foreign objects. The enclosed rail design will allow the system to operate at full speed in any type of weather, including heavy snow and ice.

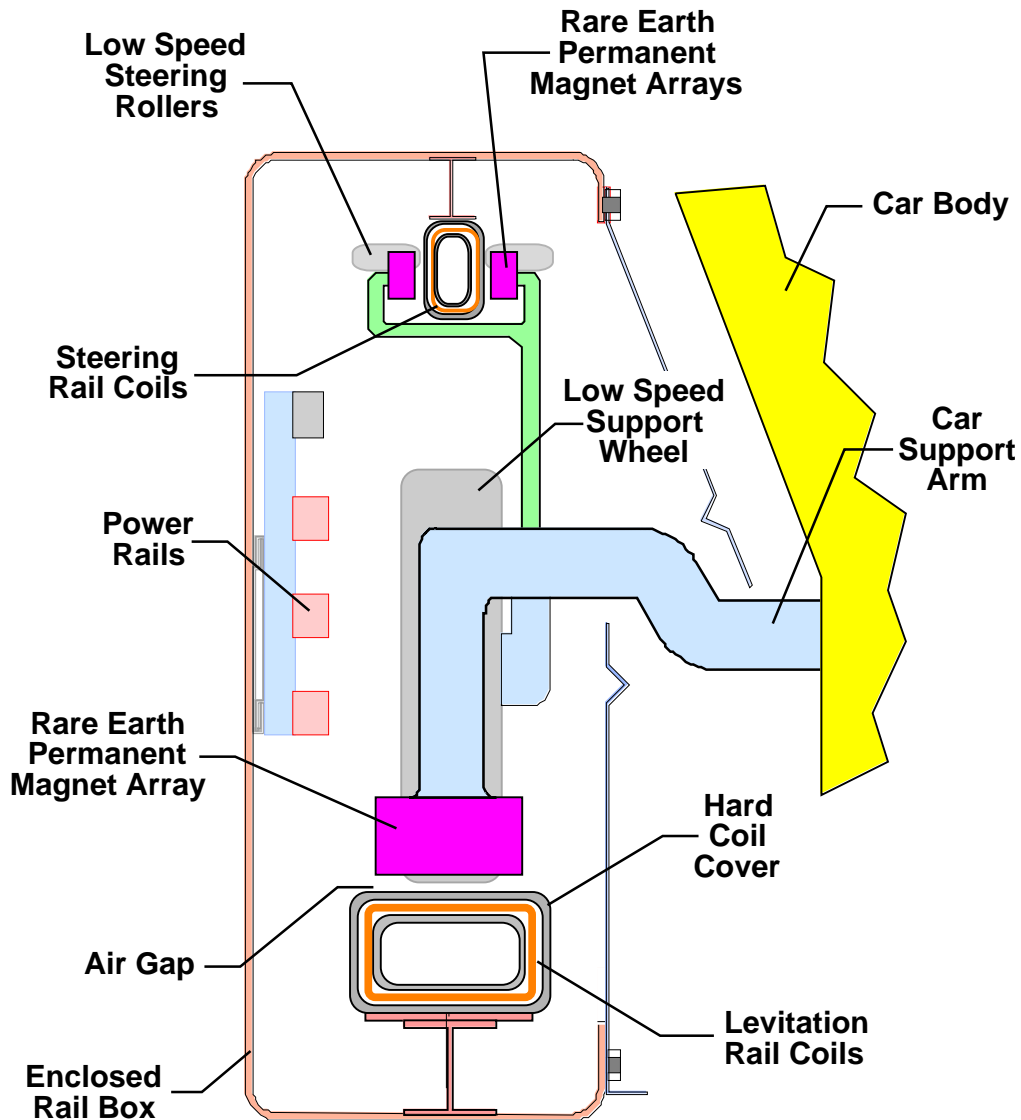
Inventor Henderson says that the system approach also allow switching of vehicles at full speed from one guideway to another without any mechanical movement of guideway elements as is necessary with other maglev guideway systems. This feature allows switching of vehicles at short inter-vehicle spacing onto and off of main guideways without effect upon other vehicles on the line. This approach reduces cost of guideway switches and increases reliability by eliminating moving parts.

401 West Jim Wright Freeway, Suite 113, 76108 - Mail to PO Box 121728, Fort Worth, Texas 76121  
(817) 738-9507      contact@megarail.com      www.megarail.com      FAX (817) 367-2373

Unlike other maglev systems that operate trains that must to stop at stations along the line to pick up and let off passengers, the individual car switching system makes it practical to dispatch small and light-weight individual cars carrying only a few passengers non-stop between stations along the line. The individually dispatched cars offer the advantage of shorter trip times possible by eliminating intermediate stops. (Intermediate stops for train operations can easily reduce the effective trip speed to one-half or less than the top speed of the train.) The small car approach has the further advantage of making it practical to have cars leave whenever passengers want to travel to a particular station rather than having to wait for scheduled trains to depart. With automated car operation, service can be provided on a 24-hour day basis. Use of small cars rather than large train cars also allows use of a much lighter weight and less expensive guideway.

Both the magnetic levitation and directional control are achieved by use of rare-earth permanent magnets on the vehicles that interact with passive electrical coils in the guideway. These coils are imbedded in both the levitation rails and in separate directional control rails of the guideway. Electrical currents induced in the guideway coils by movement of the magnets near the coils produces opposing magnetic forces that lift and steer the vehicles.

The patented transportation system locates both the levitation and directional control rail coils inside enclosed rail boxes where they are shielded from weather elements. The Figure 1 drawing illustrates a cross-sectional view of the rail box, the two rails, the magnets and other elements inside the rail box. The magnets, low-speed support wheels and electrical power collection contact shoes are mounted to support arms that extend from the vehicles into the enclosed rail box through inverted slots in the rail boxes.



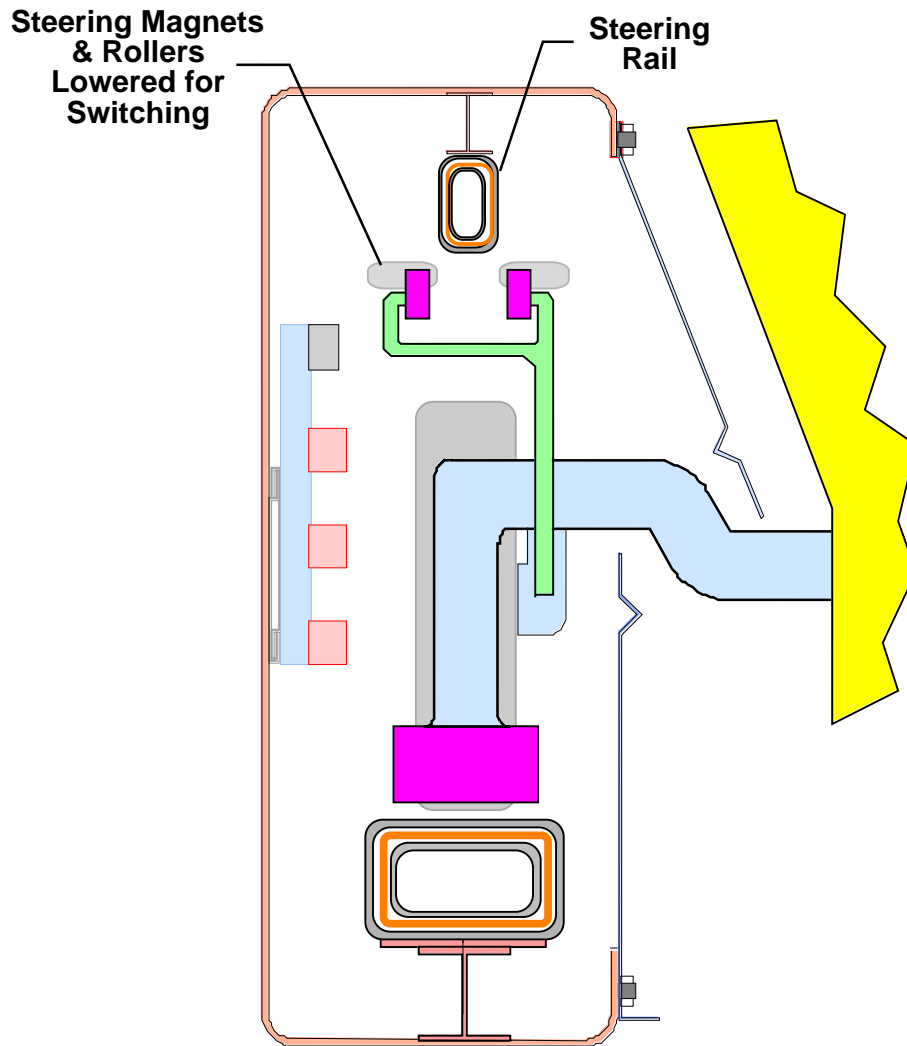
**Figure 1. Guideway rail cross-section view**

The inventor says that the enclosed rail boxes provide complete protection of the levitation, propulsion, braking, steering, and power elements from weather elements such as rain, ice, hail, sleet and snow that can stop conventional maglev trains in their tracks. Henderson also notes that the unique rail structure design enables very low cost fabrication of the rail boxes from flat steel with a minimum amount of material. He says that this low-cost fabrication and use of small cars allows construction of two-way guideway with only about 260 pounds of steel per foot of guideway at

significantly less cost than guideway for current maglev train systems that use about 2,000 pounds per foot of guideway. The low weight and low-cost fabrication concept was recently validated by testing a similar guideway section for another MegaRail system guideway.

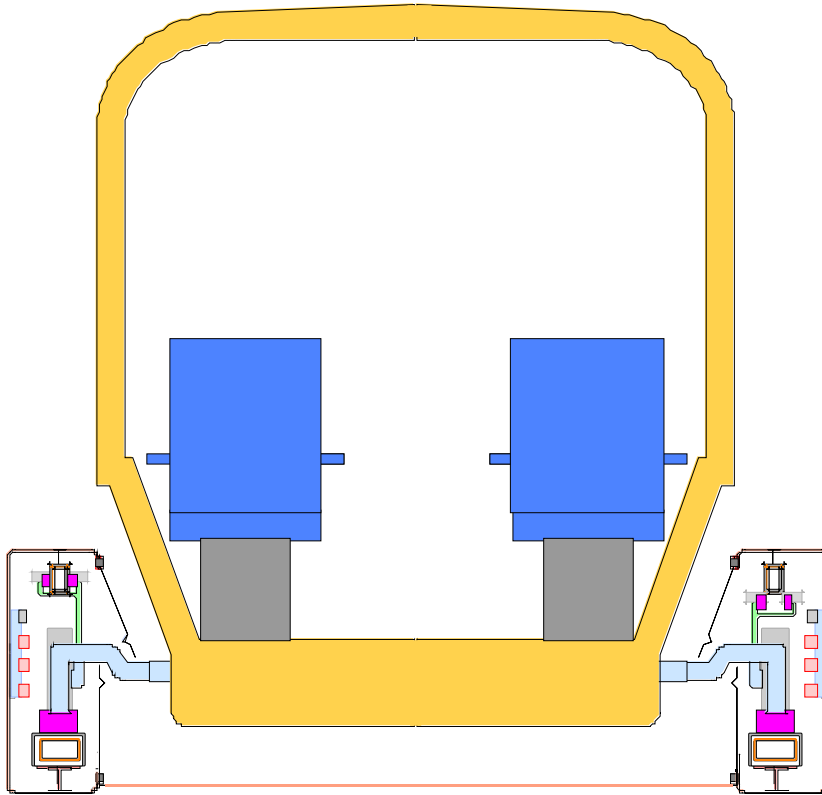
Unlike current heavy maglev train systems that generally require dedicated rights of way, the small and lightweight guideways of the maglev system to be developed by MegaRail will be designed for installation over existent interstate and other highway rights of way. Such an approach allows lower cost and avoids the often long times required for obtaining right of way.

Lateral directional control and switching of cars between guideways is accomplished by use of a combination of a steering rail mounted inside the top of the rail box and steering magnets mounted on both sides of the car as shown in the Figure 1 cross-sectional drawing. The magnets on one side are lowered as shown in the Figure 2 drawing to allow the car to follow a side steering rail in guideway section that leaves the main guideway in a similar manner as railroad tracks leave main lines at switches. The rail covers are removed at switches and the entire guideway is covered by roof and sidewalls to protect the system from weather elements.



**Figure 2. Guideway rail cross-section view with lowered switching magnets**

The cross-sectional drawing of Figure 3 depicts the arrangement of the two rail boxes of a guideway and shows a passenger car cross-section on the guideway.



**Figure 3. Guideway & car cross-section view**

MegaRail Transportation Systems, Inc. is a Texas based company currently engaged in developing a family of patented all-weather elevated automated transportation systems that employ enclosed rail designs. The first of these systems is in the prototype stage. All of the systems are designed for installation over existent road and street rights of way. These systems use lightweight and low-cost elevated guideway designs and will provide superior service to conventional light rail and monorail systems. The MegaRail system is designed for cross-country use along interstate highways and major roads.

Megarail® and MicroRail are trademarks of MegaRail Transportation Systems, Inc.



**Inventor, Kirston Henderson**

401 West Jim Wright Freeway, Suite 113, 76108 - Mail to PO Box 121728, Fort Worth, Texas 76121  
(817) 738-9507      contact@megarail.com      www.megarail.com      FAX (817) 367-2373