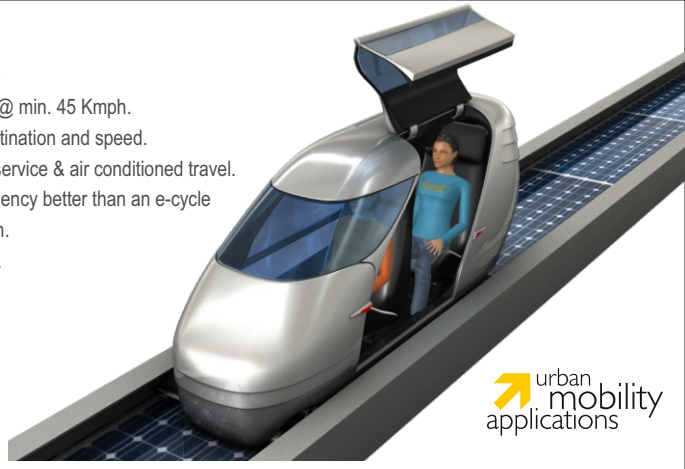
autobots

A fleet of small automated vehicles, each seating 2 people, travels on overhead guide ways linking many small stations scattered throughout an urban area in a 3D network.

- EV technologies allows for silent travel
- Cruises origin to destination non-stop @ min. 45 Kmph.
- Electronically controlled for safety, destination and speed.
- On-demand availability, personalized service & air conditioned travel.
- With solar power provides energy efficiency better than an e-cycle
- Fast, economical guide way construction.
- Grade separation eliminates collisions.



urban mobility applications

On Demand . Non-Stop . Personalized . Driverless . Air Conditioned . Travel

Mass Public Transit Systems are yet to graduate to a level of sophistication which could be demanded out of them. Off the shelf availability of advanced technologies makes it prudent for 'developing economies' to look into solutions which are effective, inexpensive, flexible and easy on the taxpayers.

There are emerging & innovative technologies powering this family of high speed urban transport products. These systems profess an inexpensive mass transit technology that borrows the best features of the automobile (on-demand, non-stop travel, from anywhere TO anywhere), but glides above the road traffic. A fleet of small automated vehicles, each seating 2/4/6 people, travels on overhead guideways linking many small stations scattered throughout an urban area in a 3D network. All points in a city with such a PRT network would be close to an offline PRT station.

By being fast and convenient, and requiring a fraction of capital investment vis-a-vis current systems, PRT is our best bet for reducing traffic congestion entirely.

The guides of a PRT system are so light and minimalist that they can be configured to reach almost anywhere for easy accessibility. Instead of stopping at every station as metro coaches do, riders could be taken directly to their chosen destination non-stop, cutting travel time significantly. Since the system has its dedicated guide way above the road and no conflicts within the system, there is no congestion. The PRT system is accessible to all user groups and highly eco-friendly.

The system runs on 'clean' electrical energy and has the least carbon footprint in enabling personalised mobility.

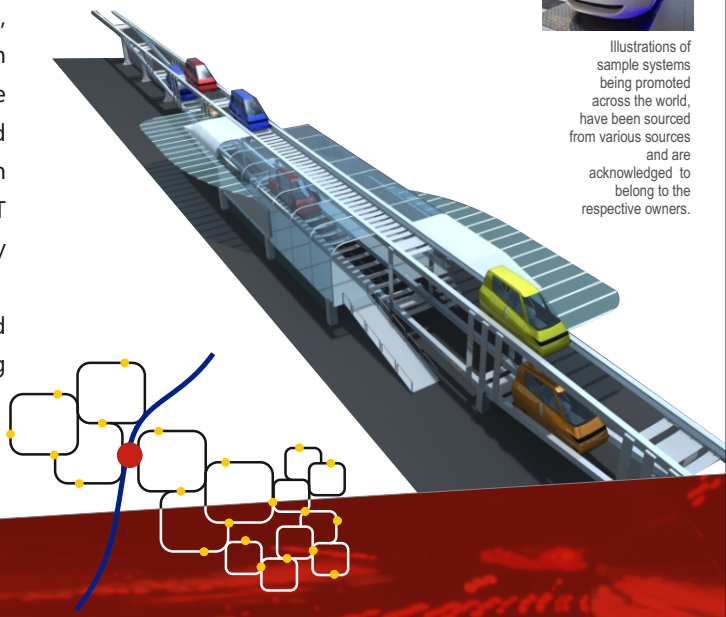
Today we have the technologies waiting for an opportunity, to demonstrate this new dimension for a transport revolution. All technology components having already proven themselves, these revolutionary systems' achievement lies in exploiting & exploring alignment network logic, headway rationale, computer control and offline station rationale. Once demonstrated, we would have transit systems, that have the potential to

- take away entire car commuter congestion in our urban sprawls
- drastically reduce fossil fuel dependence
- release ROW space in favour of zero carbon modes
- potentially construct transport infrastructure for the entire city for the cost of a single metro network.
- make large & distant tracts of land and housing more accessible - earlier
- make day to day cost of transport at least a third of those using automobiles.

Illustrations of sample systems being promoted across the world, have been sourced from various sources and are acknowledged to belong to the respective owners.

Time has just about come for email type packet switched people movers transporting people at around 50Km/Hr non-stop from point of origin to point of destination using ready and available globally sourced technologies.

- No exclusive right-of-way required
- Lowest Installation Cost per Km
- Lowest Energy per Passenger-Km
- Highest Speed yet extremely Safe
- Highest Capacity per unit cost
- Easy and personalised usage
- Non Linear, 3D grid based
- Fastest Installation
- Dispersed Supply Characteristics
- More affordable than a car
- Totally environmentally friendly



TRANXIT

The Challenge & Progress to Date

The key challenge is to build a PRT system using off the shelf technologies that can be more efficient than even an e-cycle in moving a person a unit distance in air-conditioned environment in a city non stop from origin to destination almost like the automobile .

In pursuit of the challenge, Tranxit has already accomplished the following:

1. Designed the complete system to a pre-prototype Technology Readiness Level 3 having invested approx. 300 man months of professional resources.
2. Designed the Technology Demonstration program and defined the deliverables.
3. Applied for patent of the switching configuration - a key component of any PRT system.
4. Acquired confirmed associations from reputed companies to build identified components of the complete system
5. Acquired confirmed participation consent from several Government of India academic / research / scientific Institutions of National Importance
6. Received recognition and endorsement of unique effort by Niti Ayog - Government of India's top level think tank.

The Government of India is looking at PRT / pod taxi technology system even more aggressively and there is enhanced recognition of the PRT system as a potential people mover, relevant for Indian cities, amongst policy makers.

Tech Demonstration Deliverables and Time Frame

Going forward Tranxit is seeking approximately INR 110 Crores / 15 M USD as Seed / Series A funding, to help build the technology demonstration system under EcoAutoMo and take the conception to a commercialization stage with grant funds from the Government, and complimentary funds from private investors in approx 36 months.

The demonstration system will consist of a test track loop with 3 or more autonomous vehicles that will be tested for operations across all the physical components of the track system including the station and parking. The demonstration program shall during the 36 month duration aim to test the various components of the system during Phase 1 & 2, establish system technology specifications and get third party system accreditation for safety during
Stage 3, 4 & 5.

The demonstration system shall establish the systems unique selling points:

1. In-vehicle transit time between origin to destination half that of alternatives.
2. Capital costs at least half of the nearest competitor for the same capacity
3. Operational costs equivalent to an e-cycle on a person Km basis

Role of EcoAutoMo, Business Development & Commercial Projects

PRT systems are being requested globally for different applications like airport shuttles, last mile connections, in-campuses movements and for line haul transport. EcoAutoMo shall bid for these projects and liase with city authorities / property developers across the world to sell AutoBots as a valuable product. Revenue streams from smaller deployments would include fare box & in-vehicle infotainment while from city wide deployments would also include palletised goods carriage fees.

Upon commercialization, EcoAutoMo aims to be a technology provider cum project lead for any commercial deployment, anywhere in the world. EcoAutoMo shall form consortiums with local investors for managing operations.

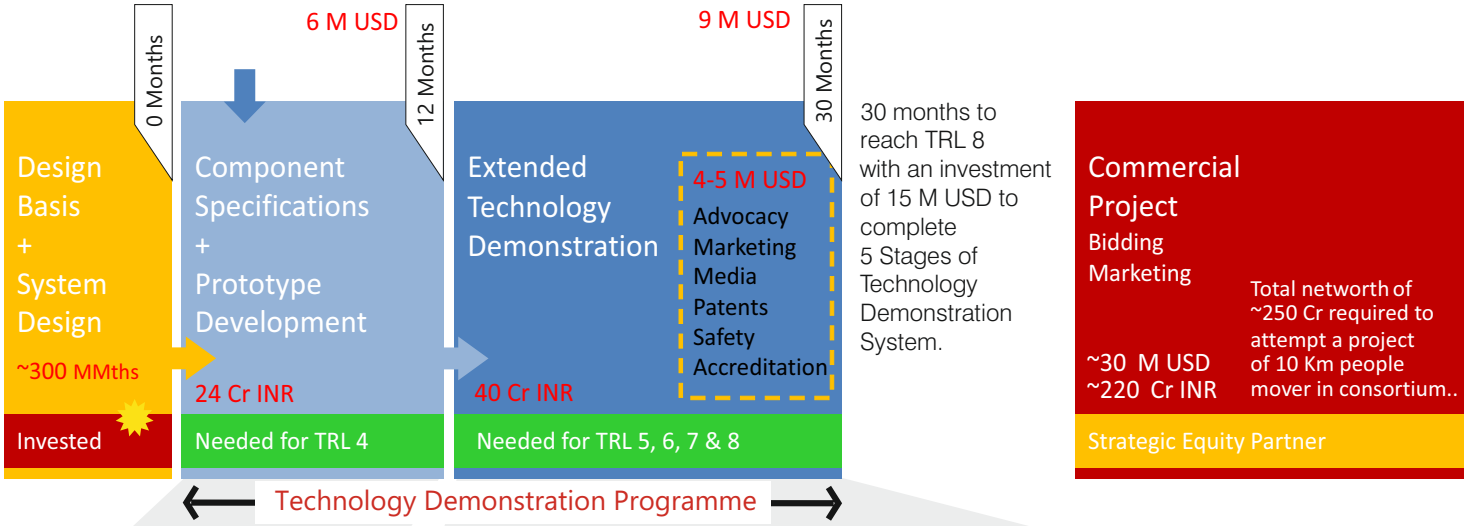
Future Investment and Exit Options

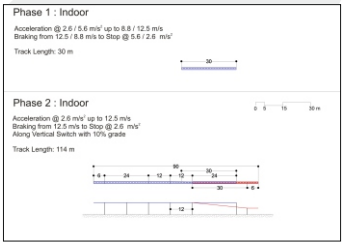
Series B funds of approximately INR 220 Crores / 30 M USD shall be required from strategic investors at the time of deploying the first commercial project. A typical 10 km people mover project worth approximately INR 800 Cr / 100 M USD needs a networth of at least 26% of the project cost for Tranxit to lead any consortium.

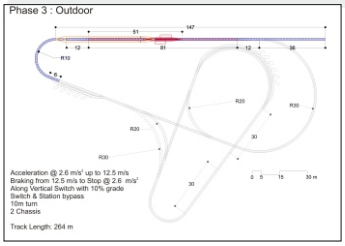
Scale up funds shall be raised through a global IPO, until when further Series of Funding may be required to cater for each new commercial project. Investors would be free to exit only at the time of IPO.

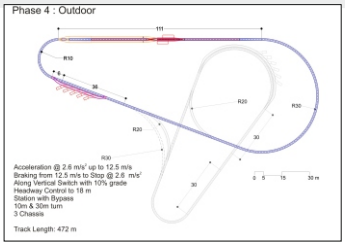
Fund Requirement for Technology Demonstration Programme

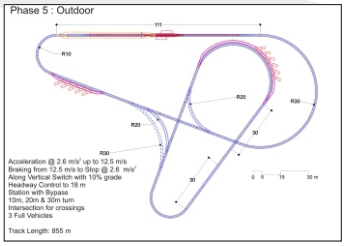
autobots











Phase 1& 2

The indoor demonstration facility would be built in full scale to include approximately 104 meters straight guideway with a secondary guideway of approximately 46 m. The guideway will be built with a full gauge rail spacing of 1.2 meters to establish the core traction and guidance technologies.

The test vehicles will consist of 2 full-scale robotic chassis assemblies, with contraction axles. Although each of this vehicle will be a 'sled' with no shell, the size of the vehicle and robotic assemblies will be the same size as those planned for a 2 passenger vehicle.
Maximum travel stroke will be approximately 45 meters, including travel into the inclined section.

Phase 3, 4 & 5

This extended development plan is focused on constructing a full test loop. The test loop will be designed to verify the performance of the integrated propulsion and suspension systems and vehicle design, and to allow extended testing to verify availability, reliability, maintainability and safety of all subsystems including the traffic & power control system at the stations and the track segments.

The test loop includes a +900 m loop section for testing at speeds up to 45 Km/hr consisting of turns with 10 m, 20 m, 30 m meter radius to demonstrate maneuverability, a 300 meter radius vertical turn and a 10% grade to demonstrate hill / station climbing ability, a 60 meter super elevated turn to demonstrate banking, 2 offline stations with 2 vertical switches to allow vehicle passing and station ingress egress and several horizontal switches for direction change.

The control system will be able to handle multiple vehicles starting, stopping and switching with short headway and will have the capability to be upgraded as system complexity increases.

3 complete units of 2 passenger seat vehicles with full user comfort and interior systems, will be constructed in order to demonstrate the versatility, for a variety of conditions.

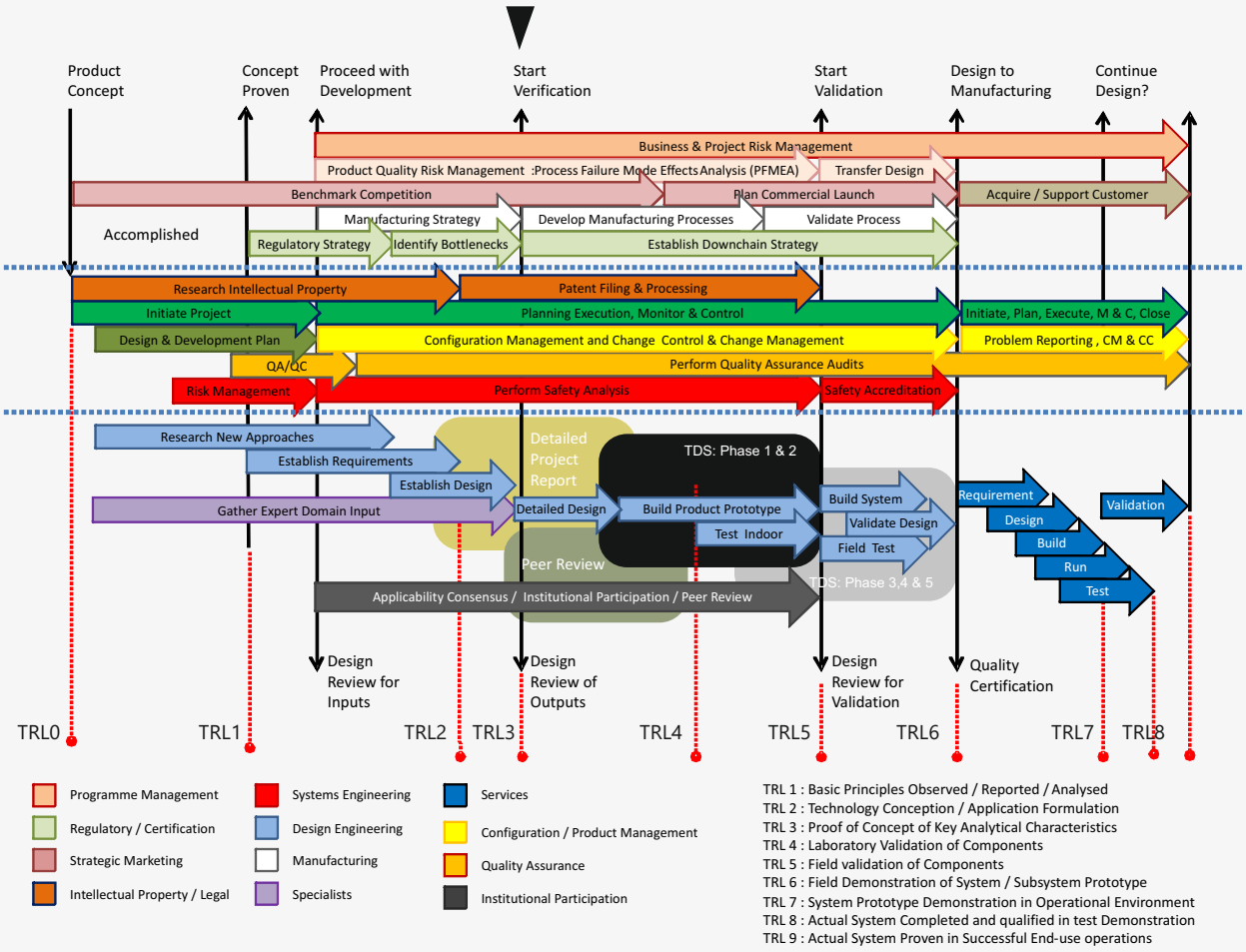
A 3D idle elevated parking system conjoined with the station shall be demonstrated to serve a vehicle at a press of a button.

Pictures of Competitor's Technology Demonstration System similar to what will be delivered at the end of the demonstration programme

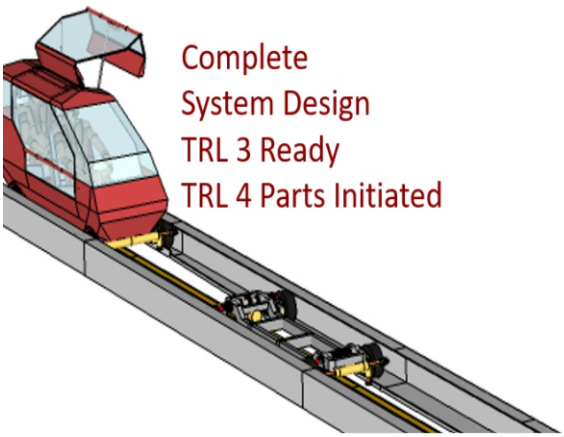
Modutram

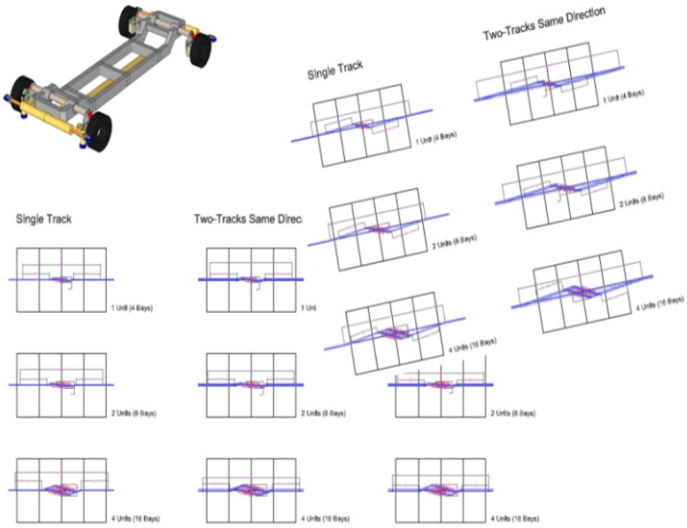
Test Track in Mexico Guadalajara Unit of the Research and Advanced Studies Center (CINVESTAV)

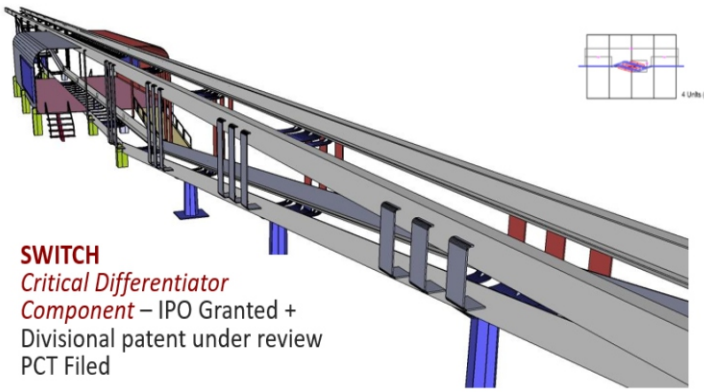
System Development Process

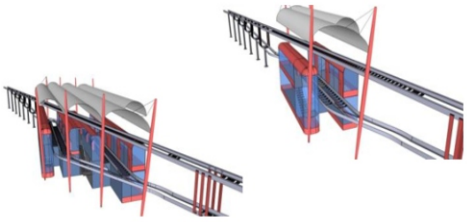


Full System Design Ready









autobots

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