



Moving Walkway: Transport of the future to reduce Pollution and Traffic

Engineering

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ABSTRACT

A Moving walkway, also sometimes called Moving Sidewalk in American English, and travelator or travolator in British English is a slow moving machine. It is used to transport people across a horizontal or inclined plane. Normally it is used for covering a medium distance. The moving walkway is used while standing or walking for transport. At present we are using this concept at many public places like Airports, Malls, Museums, Zoos, Theme parks and Theatres, In Hong Kong Travolators are used for Public transport in Urban areas. It connects many streets. This paper is based on the concept adopted by Hong Kong Government but with many more options which would not only help in making better use of public transport but would also reduce traffic and pollution too. This setup can be made on footpaths or road over bridges.

KEYWORDS

Travolators, Moving Sidewalk, Travelator, Traffic, Pollution

Introduction

Travolator is a type of Floor hat moves forwards and Carries People along.

In today's world congestion of traffic is a big problem. Everybody everywhere is facing this problem. But nobody is having a complete solution. Governments are launching projects and orders. Metro rail/ Mono rail are the two most popular projects running in almost all countries. But they have limitations like route, timing and others. If the destination is not in the way of Metro line people use their own vehicle or public transport.

A student goes to the college every day at 7.30 AM to attend his lecture at 9.00AM. His college is just a few miles away. But he is compelled to Start 1.30 hr early using public transport. This is due to traffic congestion. His mother advises him to take bicycle / motor bike or car. But the problem is not solved. Risk of accidents increases and pollution affects us. If today we do not solve this problem the future generations would have to take oxygen cylinders for going out.

Population is increasing as the death rate has reduced. The developers have to think of a plan. The plan should be designed in such a fashion that the development cost is small.

It should not harm our nature. It could be designed in such a way that it could be incorporated in the present roads without hampering the daily traffic.

History:

The first moving walkway was installed at the World's Columbian Exposition at Chicago, Illinois, United States (1893). It had two different bays: one for passengers who were seated, and one where riders could stand or walk. It ran in a loop down the length of a lakefront pier to a casino.

Six years later a moving walkway was also presented to the public at the Paris Exposition Universelle (1900). The walkway consisted of three elevated platforms. The first platform remained stationary. The second moved at a moderate speed. The third and the last moved at about six miles per hour.

In 1924 The Beeler Organization in New York City made a Continuous Transit System with Sub-Surface Moving Platforms for Atlanta. The design was similar to that of the one at the Paris Exposition.

The first commercial moving walkway in the United States was installed in 1954 in Jersey City, New Jersey.

The first moving walkway at an airport was installed in 1958 at Love Field in Dallas, Texas'.

Design and Methods:

The basic idea is to travel a short distance with but little traffic in a fixed time frame.

Moving walkway is the technology used at many international Airports and Malls. This technique can be adopted if we use our footpath, or make roads over small bridges to install

Moving Walkways so that a large crowd can move without any hitch.

It can be installed in different ways depending on the requirement and population.

Option One:

In this a walkway can be installed on the *foot path or on roads over bridges*. This walkway should move at a speed of **3kmph only**/- . This is the simplest and can be made functional efficiently and at low cost.

Option Two:

In this a moving walkway can be installed on the *foot path or on roads over bridges*. This walkway should move at a speed of **2 kmph to 9 kmph and again back to 2 kmph** as it reaches the other point. After a short gap the next lap starts.

This would help people move in both directions and the speed can be increased if a person walks on it.

If a person can walk at a speed of 3 kmph then the sum of the speeds would be 12 kmph. At this speed a person can reach their office at a distance of 6 km in just 30 minutes which usually takes 40 to 50 minutes in traffic. This type of setup would be very useful for small cities and towns.

Option Three:

In this option a moving *high speed trolley with chairs* would be connected to travel. This trolley would not stop at all points. It would only stop after a fixed length say **5 Km** or more.

Senior citizens and persons with disabilities can make use of it. The trolley would be designed as a small bus. A person can be used to drive it or an automatic system can be introduced.

Option Four:

In this type *three conveyer belts* are installed on each of the two sides. one runs at an speed of 3 kmph and rest two run like option two. Option three trolley system should also be incorporated in this system.

The width of the walkway can be kept standard ie 3 to 4 feet each with at least two bays for up and down respectively: one for men and another for women and senior citizens. The complete area could be kept closed like an airconditioned capsule.

Design:

The two basic designs of Moving walkways are:-

- **Pallet type** — In this type a continuous series of flat metal plates are joined together. It is identical to escalators in their construction. In this type most have a metal surface, but some also have rubber surfaces.
- **Moving belt** — This type of walkways are generally built with mesh metal belts or with rubber. The roller is made up of metal rollers.
- Both types of moving walkways have a grooved surface to mesh.
- Both types have moving handrails'

The moving walkways have Anti-Slip grooves on pallet surface with excellent slip-proof function. It is designed in such a fashion that riding on it is safe and comfortable⁴.

Advantages:

- It would run on electricity and hence would be pollution free
- If a stretch is non functional a person can walk through and move on to next stretch.
- No need to make extra roads or increase the width of roads.
- Where there is metro line sideways/ service ways could be used as walkways.
- Charges would be lesser making it economical.
- Developing cost would be lesser. *Hence government would not take interest.*
- Low maintenance
- Pollution free environment would reduce health diseases.
- It could be installed easily and would be Transportable³

Disadvantages:

- People might fall down and get injured.
- Difficult to convince the people to start it.
- Taxi and other commercial vehicles business would be effected.
- Heavy loads would have to be prevented.
- Training required.

Conclusion:

This project can be implemented anywhere. It would not only reduce the traffic but would also protect our environment. By using a travolator on foot path or over bridge. Most of the public would use it being a cheap mode of transportation. High speed travolators could be used for long distances and for market and heavily populated area. We have discussed four options. Each has its benefits but combination of all four types of option can be adopted by the authorities.

If any government adopts it, it would be a boon to the people. It would increase the revenue as well.

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