**Flexible, Accessible, Integrated, and Renewable: FAIR Transport to Move Your World!**

**Guilin’s Transportation Problem**
Just east of Guilin lies the “fair city” of Gongping (2164 population: 123,456). Gongping is located on the Li River in the beautiful Guangxi region of mountainous south-central China. Due to the forethought of its engineers, Gongping developed an efficient and environmentally-sound transportation system that moves the world!

[Map of China with Guilin and Gongping marked]

It wasn’t always like this. In the early-2000’s, a population explosion occurred in China’s coastal cities, including Shanghai and Beijing. By the early-2100’s, growth expanded to interior cities. People from the countryside relocated to cities such as Guilin seeking opportunities and jobs. Back in 2014, Guilin was a quiet tourist center of six-hundred thousand known for amazing karst landscapes. By 2140, it had over 17 million people and a transportation infrastructure that couldn’t keep up with growth.

Higher incomes increased demand for the independence of personal vehicles. Roads and highways became jammed with slow-moving traffic. Too many people and limited land increased housing costs. Parking spaces were difficult to find. Dense smog from vehicle emissions made it hard to see and breathe. Guilin’s traffic congestion and pollution crisis was a population density problem.

**Xin-Guilin Needed a Better Transportation System**
Personal vehicle mobility allowed residents to escape traffic and pollution and move outside of Guilin. Satellite cities soon formed. One of them was Xin-Guilin, which means New Guilin.

As Xin-Guilin grew, its Engineering Team developed a transportation system to prevent traffic and environmental problems and help Guilin recover. This brilliant team created FAIR Transport, a solution that is Flexible, Accessible, Integrated, and Renewable. Soon, Xin-Guilin was renamed Gongping, which means FAIR!
**How Does FAIR Work?**

FAIR Transport is a total solution for transportation pollution and congestion:

**FAIR is Flexible**

Flexibility is an Intermodality feature of FAIR. Its infrastructure links personal vehicles, mass transit, and cargo systems at subhubs. All lines meet at Grand Central Transit, the main subhub. Personal vehicles recharge at subhubs, and vertical parking reduces wasted space of parking lots.

GongpingPod personal vehicles are modular and expandable to satisfy everyone’s needs. They click into and out of the elevated mass transit system. StraddleTrams provide convenience for local routes, while elevated tubes offer city-wide links. The elevated systems, along with subterranean cargo transport, minimize road traffic.

**FAIR is Accessible**

With FAIR, there are no physical or economic barriers. Access is through the LifeWatch holographic, voice-activated communication system. LifeWatch, which knows each person’s needs, is linked with the IntelliGrid.

Terrace-Option Parking (TOP) provides building-side vertical parking and easy access for elderly or physically-challenged residents. Residents can enter buildings directly from their vehicles. TOP also expands living space, since pods can morph into small balconies.

**FAIR is Integrated**

Integration is another Intermodality FAIR feature. Residential, commercial, and industrial districts are interconnected. FAIR provides easy links within Gongping and to locations beyond. Subhubs assist with seamless movement between districts and the agricultural zone. In addition, modular scalability allows for easy expansion to accommodate future growth.
FAIR is Renewable
A closed-loop system called TIPS (Thermal-Induction-Piezo-Solar) generates more renewable energy than it consumes. TIPS is a Sustainability feature of FAIR:

Energy Generation
Energy is generated by the Photovoltaic-PiezoPad-Pavement (P4) Roadways. Photovoltaic surface cells harvest solar energy. Piezoelectric energy from GongpingPod traffic and thermal energy from the sun are also collected by piezo-generators below the P4-Roadway surface.

Energy Storage & Transfer
Thermal, solar, and piezoelectric energy is stored in graphene supercapcitors at subhubs. As GongpingPods travel over P4-Roadways, continuous induction charging fully powers their internal graphene supercapacitor batteries. Stored energy also powers mass transit and cargo systems.

Accessibility is FAIR
FAIR addresses Intermodality through its Flexibility and Integrated system. Sustainability is addressed through closed-loop Renewable energy. FAIR’s most important factor, however, is Accessibility. FAIR insures that all Gongpingians and visitors have access, since there are no physical or economic barriers.

LifeWatch and TOP, as well as self-driving capability, assist the elderly and those with physical challenges. There are GongpingPod options for all income levels. One can own a GongpingPod or pick one up at any subhub. If everyone didn’t have access, it just wouldn’t be FAIR!
FAIR is Safe
Gongping’s Engineering Team implemented FAIR to insure safety for all users.

- LifeWatch is adaptive to each person’s schedule and needs.
- The triple-redundant IntelliGrid insures the system is always operational.
- The carbon-negative IntelliGrid produces excess energy and always has power.
- Thermal energy collection keeps P4-Roadway surfaces cool for pedestrians.
- Biomimetic Blowfly-Eye surface solar cells increase energy efficiency and improve traction.
- Continuous induction charging is only activated when coupled with matching pod coils.
- GongpingPods are electromagnetically shielded.
- Hovering LifeBots assist with elevated transit rescue needs and fire-resistant materials are used throughout.

Tradeoffs
Originally, Gongpingians expressed concern over FAIR’s implementation and maintenance costs. After long-term benefits were explained, however, community buy-in resulted:

- Gongping has near full employment and a strong tax base. FAIR’s implementation did not require tax increases.
- The revenue stream from excess energy production helps FAIR pay for itself within 2 years.
- Congestion free P4-Roadways minimize commute times and reduce stress.
- Reduced environmental impact improves overall health.

Brilliant Engineers Insured Success
Several engineering disciplines made FAIR possible:

- Electrical engineers developed the TIPS sustainable energy system.
- Materials engineers created solar cells, piezoelectric materials, and graphene supercapacitor technologies.
- Architectural engineers designed TOP.
- Controls engineers developed LifeWatch communication and IntelliGrid systems.
- Transportation engineers created designs for movement of people and goods.

Civil engineers, however, were most crucial to FAIR’s success. They designed the infrastructure and accessibility systems and developed an efficient, effective transportation solution on time and within budget. In addition, they coordinated all other engineers involved with FAIR’s implementation.

FAIR transport prevents traffic congestion and transportation environmental problems in developing cities. It is also a blueprint to recovery for cities impacted by traffic infrastructure crises from high population densities. FAIR Transport: developed by engineers to move your world!


Web. 9 Nov. 2013.  


<http://www.nationalparkofchina.com/guilin.html>  


<http://money.cnn.com/2013/05/07/autos/tesla-google-self-driving-cars/>.  


