

## **Toyota i-unit**

### **The expansion of human mobility**

- A new mobility concept to inspire the individual
- Developed for exhibition at Expo 2005, Aichi, Japan
- Design is inspired by a leaf
- Leading edge IT features including biometric recognition

Visitors to the Toyota stand at the Frankfurt Motor Show will be introduced to an exciting new concept in human mobility – the Toyota i-unit. The i-unit has been developed for exhibition and performance at the Toyota Group pavilion at Expo 2005, Aichi, Japan and is being shown in Europe for the first time.

The inspiration for the i-unit design is the leaf, a natural expression of life on earth. The organic form of the i-unit blends with the landscape and becomes one with the passenger, moving like a living thing. Travelling through the environment and reacting to its surroundings, the i-unit grows with you.

Yoshiaki Kato, chief engineer of the i-unit R&D team says: "Freedom of movement brings out the individual in each of us, directly affecting society and the earth as well. Movement changes the self and, in turn, the direction of society. This is what I wish to express with i-unit.

"It is a tool that people of every generation will find attractive and want to ride; once they ride it, they will see that it seems alive. For me, the ideal future society would not be an inorganic one surrounded by machines but one where nature and life flourish together, and in which human beings live naturally."

The i-unit is not much bigger than a person. It offers space-saving mobility and can run indoors and out; turning in its own length if necessary. The i-unit's variable positioning system changes vehicle height depending on speed, which depends on driving environment.

In low speed, upright mode, i-unit allows you to interact with the world around you. Your eye level in the cabin will be the same as that of people around you. You can communicate with people around you from the open i-unit cabin.

In reclined position in high-speed mode, the i-unit becomes your own futuristic sports car. With a low centre of gravity and exceptional stability, i-unit allows you to make every turn in your imagination; just like skateboarding or running. The i-unit is an extension of your body.

And, on the open highway, automated driving is possible in dedicated lanes as your i-unit uses a network to run in file formation with other i-units and communicate with the road ahead. Accidents and congestion are a thing of the past.

Your encounter with i-unit begins when you call it on your personal portable terminal. The i-unit

recognises you through its personal recognition system that distinguishes passengers by their palms and facial features.

i-unit reacts to your personal mood. The driver monitor unit provides music and information according to your emotions, physical condition and personal preferences. Even the body colour can change and be customised through LEDs.

Movement with i-unit is intuitive, just like using your hands and feet. Push the drive-by-wire controller forward to move forward or left to turn left, and so on. Independent right and left front wheel steering controls and rear in-wheel motors control the movement, allowing the passenger complete control – drive at high speed or manoeuvre on the spot.

An IT controller transmits various driver support information using natural senses; sound, light and vibration. A display system detects and superimposes the vehicle position over an actual view of the driving environment. These features, together with communication based on a directional voice and audio system, allow for user friendly and realistic interaction.

The Intelligent Transport Systems (ITS) prevent accidents before they happen. The driver support system detects the vehicle surroundings and communicates the position relative to other cars and the road infrastructure to support safe and comfortable driving.

Of course, i-unit is environmentally friendly throughout its lifecycle. Kenaf, a natural fibre, is used in the body and parts made by injection moulding, such as the armrests, are created from polylactate.