

## Text 4

MANY car designers are convinced that a radical change in automobile technology is going to be needed for the crowded megacities of the future. By 2030 more than 60% of the world's population is expected to be living in cities and more of them will be able to afford cars. The need to reduce emissions, the need for land for roads and parking, and the possibility of laws restricting the use of conventional cars all suggest that different and smaller types of vehicle will be in demand.

Bubble cars were originally built in the 1950s to provide cheap personal transport. Most had 2 seats with just three wheels. They became particularly popular when fuel prices increased dramatically in 1956, during the Suez crisis.

Three new versions of bubble cars, called EN-Vs (for Electric Networked-Vehicles), are now being introduced. They can be driven normally or operated autonomously, with their drivers doing other things while the cars automatically drive themselves.

Automated driving of this sort is still far into the future but the automated parking feature on the EN-Vs could be used at places like shopping centres, for example. Drivers would stop at a designated entrance, get out, and leave their vehicles to go and park by themselves. And you could call the car back by phone at the end of the shopping expedition. And instead of being powered by dirty little petrol engines, they are driven electrically. The most surprising thing, however, is that they have just two wheels. The two-wheeled balancing system was developed by Segway, a firm which makes personal-transport devices used by policemen and postmen for example.

The advantage of this is that the car is less than half the size of a MINI. Two wheels also makes it easier to manoeuvre. With a top speed of 40kph and an autonomy of just 40km, its performance is limited. But average traffic speeds in many cities are already below 40kph and urban drivers don't drive very far in a typical day.

Renault is launching a range of electric cars but with 4 wheels for its smallest design, the Twizy. This will be seen at the Paris Motor Show, which opens on October 2nd, and should be available in 2012. It will have a top speed of 75kph and a range, with a full battery, of just under 100km. Inside, the driver and a single passenger sit in tandem, as they would on a motorcycle.