the start (or whenever the digital map changes because of things like blocked roads or traffic jams). Afterward, though, the route calculation system works 1,200 times faster than conventional methods do.

Admittedly — because the 20-minute set-up period is impractical — the software is not really equipped to deal with the requirements of vehicle navigation systems.

However, the software is ideal for a system based on a central computer that can regularly integrate the latest traffic reports into new calculations. A server of this sort could, for instance, be used in a logistics company or a trucking operation, or it could be used on the Internet for route planning purposes. Such cost factors as tolls or time windows for deliveries to customers can also be taken into consideration.

Preferred Roads. One problem with the use of digital maps is what actually constitutes a preferred road. “These are not always expressways or federal highways, because situations arise that lead to long detours when these particular roads are used,” Lauther says.

That’s why Siemens is working on software that will find the important roads for optimal route planning independent of the information provided by map makers. If one highway regularly appears in various route calculations, it is particularly important and is highlighted on the digital map. It thus gains priority in the route planning that follows. As a result, the reliability of the road classification rises compared with the information provided by the map maker.

A licensee is already using Siemens’ route planner to optimize the trips of a logistics company.

But the route planner is not just suited for highways. It also can be used in communications networks. After all, there are many routes that a message can take. A communications network can therefore be considered to be a map and the various network junctions can be seen as intersections. Thus, a defective or heavily used cable can be integrated like a blocked street into route calculations in order to produce the optimal cable connection.

Sylvia Trage

Logistics is facing many challenges: the globally networked business world, e-commerce, and individually manufactured products that result in steadily shrinking batch sizes. Solutions include extensive electronic networking of the value-creation chain, automated warehouses, robotics technology, route optimization, and “intelligent” transponder tags for goods. (p. 9)

Transponder tags will compete with bar codes. Not only can they ensure seamless tracking of entire streams of goods — they also make it possible to monitor warehouse inventories in real time. (pp. 13, 16)

The day is coming when warehouse robots will assemble pallets of goods for delivery according to customers’ wishes. Siemens and Kuka Roboter GmbH are currently testing a pilot operation. (p. 14)

A new automatic mail-forwarding system from Siemens will be integrated into mail-sorting operations and help the U.S. Postal Service save hundreds of millions of dollars annually. (p. 20)

In the age of e-commerce, small deliveries will become increasingly common. For future delivery of goods in urban areas — when no one’s at home — there will be a choice of three concepts: box systems, pick-up stations, and automatic storage lockers like Tower24. (p. 22)

Air travel will soon become faster and easier. Innovative baggage conveyor systems like the one at Munich Airport’s Terminal 2 enable travelers to make connecting flights in as little as 30 minutes. (p. 24)

A forecasting model based on neural networks can predict product sales with 85 percent accuracy. The right reaction to sudden change is vital. That’s why tomorrow’s software will factor in the dynamics of the entire logistics chain. Siemens’ route planner ensures that a delivery travels the shortest and fastest route to the customer, thanks to calculations that are 1,200 times faster than with conventional processes. (p. 27)

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