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Shaping the future – Siemens supports the Science Express exhibition train

German Chancellor Angela Merkel to launch Max Planck Society's exhibition train in Berlin on April 23 – Science Express to tour 60 German cities by the end of November 2009 – Siemens, as a leading supporter, to contribute a wide range of exhibits and related projects

From April to November, a unique mobile exhibition will showcase the latest developments in science and technology in Germany. In 12 cars extending over more than 300 meters of track, the Science Express will offer visitors a “hands-on experience of the future.” Siemens is supporting the exhibition as one of three partners from the business community. “For me, sustainability is the most pressing issue of the 21st century,” said Siemens President and CEO Peter Löscher. “It’s also a key focus of the Science Express. That’s why we’re very pleased to support this exciting journey into the world of tomorrow.” To highlight future-oriented research topics and innovations, Siemens is contributing 13 exhibits on issues ranging from energy, the environment and healthcare to mobility and urban life as well as related projects at several of the stops on the train’s itinerary. Sponsored by Germany’s Federal Ministry of Education and Research, the Science Express will be one of the German government’s main activities to honor Science Year 2009 and commemorate the 60th anniversary of the founding of the German Federal Republic.

The aim of the Science Express exhibition train is to show just how important research and technology are in Germany today. “Now, more than ever before, knowledge and knowhow are decisive competitive advantages for companies as well as countries,” said Siemens Chief Technology Officer Dr. Hermann Requardt. “If Germany’s going to maintain its leading position in a wide array of technologies, we’ll have to retain the best experts,” he added. “That’s why Siemens will be hiring top new researchers and engineers in Germany and around the world this year, too. We can’t relax our efforts in research and development since the innovations of today are the businesses of tomorrow.”

The topics showcased in the train's 12 cars range from fundamental questions of cosmology, particle physics and evolution to applied research in energy, the environment, industrial production, agriculture, mobility and urban development. The aim of the exhibition train is to acquaint visitors – and, above all, young people – with the challenges of our time and to encourage them to contemplate possible technological solutions.

As the most pressing challenge of the 21st century, sustainability poses all the questions addressed by the Science Express: How can energy be generated and used without damaging the planet? How is it possible to protect the environment while producing products for billions of people in a world of finite resources and global competition? And how can a high-quality, affordable healthcare system be provided for an aging population?

The Siemens exhibits

Focusing in Car No. 9 on “sustainable + efficient,” Siemens uses the entire energy chain to illustrate the path from the most ecofriendly forms of power generation to power distribution and optimally efficient energy consumption (in buildings, transportation systems and industrial applications, for example). At an interactive table, visitors can zoom out information and view videos and graphics presenting data on energy efficiency.

Shifting demographics and its effects on healthcare systems are the main topic of Car No. 7. Here, the exhibits and displays showcase innovative healthcare solutions that can make “a world without disease” a reality. Visitors can take a look inside the operating room of the future to learn, for example, how minimally invasive heart operations will be performed in the years to come. For instance, it will no longer be necessary to open the chest cavity in order to insert a new heart valve via a catheter – a small incision in the chest will be enough. Operating rooms will be equipped with special X-ray systems that provide 3D images of the bodily organs while operations are still in progress – increasing patient comfort and cutting costs. Films in Car No. 7 also highlight the link between molecular medicine and high-tech imaging and laboratory diagnostics as well as applications like the electronic patient file that will enable clinicians to network healthcare services into an integrated system.

In Car No. 6, Siemens shows how production and logistics can be linked worldwide in digital factories. A fully functional, automated mini factory for producing small soccer balls has been constructed inside the car. As the balls move along the assembly line, even their colors can be controlled interactively.

Today, more than half the world's people live in cities. More than two-thirds will be city dwellers by 2050. But what will life in the future be like? The exhibits in Car No. 10 tackle key aspects of this question. Intelligent buildings that make urban life as pleasant as possible while protecting the environment will be vital if cities are to continue to be livable. Energy-saving lighting systems based on light-emitting diodes (LEDs) and organic light-emitting diodes (OLEDs) will also play a key role. The train's complete lighting system, which was supplied by Osram, demonstrates just how powerful advanced light-emitting diodes can be. The Siemens subsidiary has also equipped the interior of Car No. 11 with 1,900 LED lighting tiles. The result: a luminous, constantly changing interplay of color. A model "house of light" inside the car demonstrates how OLEDs can transform our everyday lives. Conventional lamps may soon be a thing of the past: the house is illuminated by windows, ceilings and parts of the floor. OLED applications range from self-luminous canopies, which emit a diffuse light similar to that produced on cloudy days, to luminous carpets and pliable, transparent light partitions.

Intelligent sensors will also be an important component of day-to-day life. For example, in Car No. 10, air humidity and CO₂ levels are measured by a special "nozzle sensor" developed by Siemens researchers. If, for instance, the CO₂ concentration in a conference room reaches a critical level during a meeting, a warning signal will sound, indicating that the room should be ventilated before participants become overtired or lose their concentration.

Car No. 11 contains another special exhibit: Siemens has combined a 3D face scanner with a biometric fingerprint and hand geometry recognition system especially for the Science Express. In the future, such scanners can help provide security for automatic teller machines and the Internet. Using the device, visitors to the train can scan their faces in a matter of seconds, let the 3D images rotate on the screen and then e-mail the profiles to themselves or their friends.

Visitors can also tour the train online via a dedicated Internet portal at www.expedition-zukunft.siemens.de. "To shape the future, we need young men and women from diverse backgrounds who are eager to contribute their knowledge and commitment. But the first steps in this process have to be taken at school," emphasized Peter Löscher. That's why Siemens is sending invitations to its 68 partner schools in Germany, among others, and has launched two competitions to intensify student interest in the sciences and technology. In one competition, student reporters research and write reports on the Science Express or on topics that it addresses. In the other competition, students present their ideas about specific aspects of the future.

Building on its tradition of innovative strength, Siemens has 32,500 researchers around the world, generating nearly 40 inventions per workday. In fiscal 2008, Siemens' R&D expenditures totaled some €3.8 billion or 4.9 percent of the company's total revenue. Siemens worldwide currently holds 55,000 patents, ten percent more than in fiscal 2007.

Further information is available at:

www.expedition-zukunft.siemens.de

www.siemens.de/innovation

www.siemens.de/expedition-zukunft

www.forschungsexpedition.de

www.expedition-zukunft.org

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