



Mihir Garimella, 14
Pittsburgh, Pennsylvania

ScentIt: Digitally Recreating Smells

Project Background: Mihir's parents are from India, where he and his family often travel. "I enjoy the unique sights and smells, but end up missing them once we come back home," he says. Weekly video calls with his grandparents back in India let Mihir see what he's missing—like their garden. "While I enjoyed being able to see it, I wondered about being able to smell it as well," he says. Mihir knew smell triggers memories like no other sense. He also realized computers involve our using vision, hearing and touch—but not smell. Mihir started to explore ways of adding smells to make any digital experience richer and more interactive.



Tactics and Results: Mihir decided to create a way of linking specific scents to particular moments in a short movie. He split the project into three phases. He began by creating a scent synthesizer—five microchip-based air fresheners, each linked to a microprocessor. To control the air fresheners, Mihir modified their circuitry so they would respond to signals from the microprocessor. He then programmed the microprocessor so it would interpret signals sent via computer. Mihir next built a library to build and send those instructions. And last, he used the library to create a movie editor. It would command scents to be released at precise points (and from precise locations) during his movie clip. For example, the device released a cinnamon scent during an ad for cinnamon rolls. "This is truly the interactive experience of the future, and my project is a step towards making this a reality," Mihir says.

Other Interests: Mihir enjoys technology, particularly robotics and programming. "They allow me to create something useful that solves a real problem," says Mihir, who created a scheduling app used by more than 900 of his schoolmates. Mihir also likes bicycling, playing cricket and practicing karate. (He's a third degree black belt.)

Career Interest: Robotics engineer. "I've long been fascinated by robots. I enjoy working with hardware and software, and one thing that excites me about robotics is that it is at the intersection of these two fields," Mihir says. He finds artificial intelligence especially intriguing, whether in self-driving cars or robot-automated factories.