The Moscow Times
30 YEARS
INDEPENDENT NEWS FROM RUSSIA

Whiz Kid Invents 'Talking' Walking Stick for the Blind (Video)

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February 20, 2014



A passion for invention came to Pavel Kurbatsky early, when he was a boy of seven or eight.

While his classmates spent their free time playing football and other games, he made mechanical toys and did not leave his soldering iron for a moment.

His first real invention, at the age of nine, was a thermometer for visually impaired people. It vibrated several times to show the body temperature, making it easy for people with poor eyesight to measure their temperatures.

Then Kurbatsky looked for ways that technology could be used to help the hearing impaired.

Now Kurbatsky, 18, a first-year student at Moscow's Bauman State University, is creating something of a furor in innovative circles with his most recent invention: a walking cane and "talking" dark glasses that help blind people navigate unknown environments.

Asked why he started inventing tools for disabled people, Kurbatsky initially shrugged.

"I saw that blind or deaf people are the same as us but they have a hard time moving around and living in an environment that is badly designed for them," Kurbatsky, a gangly, solemn teen, said in an interview in his dorm room at Bauman State University. "I decided that I could help them in some way."

Pressed further, he recalled that as a young boy he worked as a volunteer in a care home for disabled children. He saw many children with various health problems and decided that some day he might be able to make tools to ease their lives.

At first sight, the walking cane and talking glasses do not look out of the ordinary. But the cane contains sensors that can trace obstacles at three levels: the head, waist and feet. When a blind person approaches an obstacle, he or she gets a signal that something is nearby. A recorded voice tells how many steps ahead is the obstacle. The voice comes from earphones built in the glasses.

In a recently upgraded version of the invention, Pavel Kurbatsky added a GPS system that allows the user to understand easily where he or she is located.

The accolades have started flowing in. Kurbatsky has participated in numerous technical exhibitions and won several grants for his latest invention, including from U.S. technology giant Intel and Germany's Siemens. Last year, he placed first and collected 460,000 rubles ($12,000) in a Russia-wide science contest sponsored by Siemens and third at an Intel fair that he attended in the U.S. One of the grants also came with a proposal to study abroad, but he decided to stay in Russia and study at Moscow Bauman State University, the country's premier scientific institute.

"I first read about Pavel's invention in the news. Then I met him in person and invited him to join our Club of Interesting Entrepreneurs, KLIP, which was founded at our university," said Alexei Kuzmichyov, a professor at Bauman State University.

Intel also sees Kurbatsky's potential and would like to collaborate with him. "We started working with Pavel some time ago, when he was still in high school. He impressed the jury at the Intel ISEF competition and won praise from our experts," said Mikhail Korovin, an Intel coordinator for corporate social responsibility projects.

Intel is helping Kurbatsky to test and improve his cane and glasses by providing expert opinions from various specialists. "It is very valuable that he identified a problem on his own and started working to find out a solution. This proves his talent," Korovin said.



Pavel Kurbatsky demonstrating his cane for the blind, which has sensors that can scan the surrounding areas. (Vladimir Filonov for MT)

Testing the Cane

Now Kurbatsky is making final tests on the cane and glasses and is looking to patent them. The tools are currently being used in his hometown of Armavir, located in the Krasnodar region in southern Russia and not far from the site of the Winter Olympics in Sochi.

The local City Hall building is equipped with special sensory units designed by Kurbatsky and compatible with the cane and glasses. When a person approaches an office inside, the voice in the earphones explains which services are available there. Kurbatsky said the whole city could be equipped with the sensors, allowing blind people to know when they are passing a pharmacy or a hospital, for example.

"When this young boy came to us with a request to test the system, we were very surprised," said the director of the local branch of the All-Russia Organization of Blind People, Konstantin Sergynchik, who helped negotiate with the City Hall to install the sensors.

But, he added quickly, "I was not skeptical about Pavel's invention because I realized from the very beginning that it would be an indispensable tool for blind people."

His organization has matched the cane and glasses with visually impaired people, including Roman Maximenko, 23, who has had poor eyesight since early childhood.

"I helped Pasha test his cane and glasses," Maximenko said by phone from Armavir. "Since then we have become friends. He often discusses his new inventions with me."

He said Kurbatsky acts like a normal teenager — with the sole exception that he has a brilliant

mind. "Pavel is like any other young boy, but his talent is the thing that sets him apart from others."

He said he regularly uses the walking cane and has found life is easier now.

Kurbatsky's father, Igor, said his son's talents were not a surprise to the family. They developed rapidly and right in front of their eyes, so they got used to his passion.

"He always has been very interested in electronics and mechanical things, ever since his early childhood," the father said by phone from Armavir. "We tried to support him as much as we could."

But it took some time for other people to acknowledge his aptitudes. At the age of eight, he wanted to join a radio mechanics club but was rejected because of his young age. However, a little while later he won a contest for young inventors and was suddenly noticed by the head of the club.



The glasses have built-in headphones warning the wearer about obstacles. (Vladimir Filonov for MT)

$300 Per Set

Father and son have created a company to produce and sell Pavel Kurbatsky's inventions, but the firm has not made a profit and probably never will, Igor Kurbatsky said. He said that the money his son won from grants has all gone into the development and testing of the cane and glasses.

Since serial production cannot begin until a patent is granted, a retail price for the cane and glasses remains unclear. The Kurbatskys hope to keep the price around the cost

of production, or 10,000 rubles ($300) per set.

"As soon as we start actual manufacturing, we will try to work with the government and provide Pavel's invention at cost price," the father said. "So we are not planning to make a profitable business out of this. We just want to help blind people."

Pavel Kurbatsky echoed his father's words. "I am not trying to make a fortune out of my invention," he said. "I just want it to be useful. I am planning to turn to the government and propose my inventions to the social services that provide blind people with medical equipment for free."

Pavel Kurbatsky said he has received numerous offers from investors, but most of them came with conditions that he found unacceptable. "Once an entrepreneur came to me after an exhibition and said that he would buy my cane for 5,000 rubles and wanted a share in the future business," he said.

Negotiations also were held with a group of German businessmen, but Kurbatsky said he wanted to launch his product in Russia first.

As a first-year student at Bauman university, he has less time to tinker with his inventions. But when he has a few spare hours, he continues to experiment with new uses for his inventions. His next project is aimed at helping blind people get around in churches. He has already spoken with representatives of the Russian Orthodox church in his hometown and intends to develop a system that will inform a blind person about which icon or other item he or she is approaching.

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