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# INGENIOUS INTENTIONS

A young inventor is driven to develop devices to help the blind and those who are autistic, writes **Aneeta Sundararaj**

**"My focus is on making someone's life better."**

*Raghav Ganesh*

**Y**OUNG Raghav Ganesh breezes into the room and folds his lanky frame into a comfortable chair. At ease from having given many interviews in a distinct American accent, this young inventor starts by sharing his love of reading comics.

Rattling off the names of the common ones, he then hones in on his favourite from Hindu mythology. It's about Birbal, the legendary advisor of Emperor Akbar.

The story goes: One day, a man presents three sculptures and Akbar asks his courtiers to rate them. They all say that the sculptures are identical. Birbal, however, says that in the first, a wire comes out of one ear. In the second, it comes out of the mouth. In the third, which Birbal decides is the best, the wire remains inside. It is, he says, a metaphor — a secret, like that embedded wire, should never be revealed.

Keen to follow the moral of the story, Raghav says: "If (I'm told) a secret, I'll try to internalise it."

Raghav delivered his keynote speech at the YoungChangemakers Summit 2016 in Kuala Lumpur. This summit was held in conjunction with Universal Children's Day, which is celebrated on Nov 20. Held at Pusat Kreatif Kanak-Kanak Tuanku Bainun, 300 children from seven schools attended this summit.

#### TAKING THINGS APART

He admits that he has always been curious about things ever since he was a child. "I like to take things apart," he confides, grinning, before adding: "And

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The SmartWalk alerts the blind to obstacles.

The Serene device caters to autistic children.

(I) don't necessarily put them back."

A native of San Jose, California, Raghav's ideas for his first invention began to develop after he watched a video on YouTube. Unable to remember the name of the video, he explains that it was about people who'd gone blind as a result of suffering from diabetes or glaucoma. Only 12 years old at the time, he decided to do something to help them.

Describing his project as "fun", Raghav started by going to the Home Depot hardware store near his home and buying a white pole to act as the white cane used by the blind. Then, he attached

his device onto the pole to test it. Once he knew it worked, he went to the Santa Clara Valley Blind Center and asked if the people there would help him. He met Steve Mahan, the CEO of the centre, who agreed to test out Raghav's prototype.

Grinning, Raghav says: "Actually, a very funny thing happened." In the beginning, the device wasn't working. Puzzled for a moment, the youngster quickly realised that it wasn't switched on. The ensuing laughter broke the tension between them.

"He gave me very good feedback," says Raghav.

Persistent, Raghav accepted all the constructive criticism he received and proceeded to make changes to his device. One of the changes included adding a sensor and changing the lever to a motor for a vibrator similar to ones found in a smartphone. The vibrations increased and decreased depending on how near or far away the user was from an obstacle.

Once the device was perfected, the result was the SmartWalk, which is described as an "invention that uses ultrasonic and infrared technology to alert the blind user about upcoming obstacles." Funded by Youth Service America, Raghav made several copies of his invention and donated them to the centre.

Hot on the trail of the SmartWalk, Raghav then invented another device, a wearable one that caters for autistic children. Called Serene: An Assistive Biomedical System for Autism Spectrum Disorder, it has "sensors that measure and interpret the user's stress level." Caregivers get a signal on their smartphones when a child becomes

stressed. They are then able to respond in good time to prevent a complete meltdown of the autistic child.

As recognition of all his efforts, Raghav was announced one of the winners of the Gloria Barron Prize for Young Heroes and a recipient of the Davidson Institute of Talent Development fellowship worth US\$25,000 (RM112,000).

The Prudential Spirit of Community Awards named Raghav one of America's Top 10 Youth Volunteers of 2015.

#### QUIET SUPPORT

Like many teenagers, Raghav credits much of his success to the support he has received from his parents, Ganesh Subramaniam and Latha Subramanyan. Appreciative that they've provided support from the sidelines, Raghav believes that they could only have pushed him so far.

"You still need to be self-motivated," he says. That doesn't translate to competing all the time, he swiftly warns. In fact, he feels that whatever a child does, there must be some element of fun involved in it. "They may not know what their passions are, but they must explore," he adds, for emphasis.

The 14-year-old inventor also confides that since both his parents were born and raised in India before migrating to the US, he's been influenced by the culture and philosophies that abound in the Asian subcontinent many times. For one, a curious difference between the two countries he's observed is that there is a spontaneity in India that's somewhat missing in the US. Elaborating on this point, he shares that living in the suburbs in the US,

he and his friends would have to make plans to play something as simple as a game of basketball. In India, play can happen spontaneously.

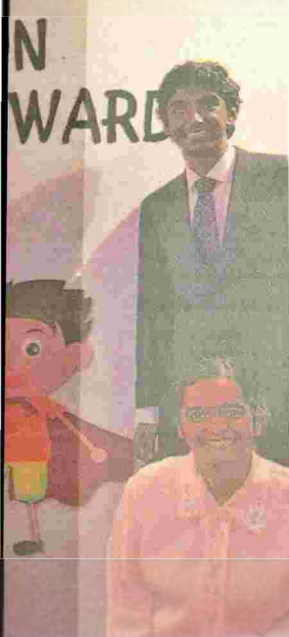
India is also where Raghav seems to have cultivated the motto he lives by: Service Through Science. It arose from his belief in the teachings of the charismatic Indian guru and philanthropist, Satya Sai Baba. All this has helped to keep Raghav grounded. In fact, at his school in Lynbrook High School in San Jose, he's certain that his schoolmates do not see him any differently in spite of all his success.

With no reason or desire to stop, Raghav plans to continue inventing and developing gadgets to help people.

"But," he quickly adds: "I also want to look after the things I've already made." He has observed that, many times, people create something new and exciting and when the project is complete, they move on to other things. They forget that these previous inventions are still needed by the people they helped.

The future, believes Raghav, is all about collaborations. To illustrate, he uses the example of working with autistic children. It was necessary to work with people in other fields to come up with his invention. With a maturity that belies his youth, he says: "If you compete with everyone, then you're not going to get very far." It makes sense, then, that the teen wants to pursue subjects that are interdisciplinary in nature, such as bioengineering.

All said and done, whatever he chooses to do, Raghav's focus remains crystal clear: "My focus is on making someone's life better."



Raghav, seen here with his proud parents Ganesh Subramaniam and Latha Subramanyan (foreground).