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Jersey City Shining Star Rises to Global Recognition; McNair Senior Eswar Anandapadmanaban A Global Finalist in the 2014 Google Science Fair
Residents Can Help Eswar Win a $10,000 Grant by Voting for His Project!

JERSEY CITY – Mayor Steven M. Fulop and the **Jersey City Municipal Council** are proud to announce that **Eswar Anandapadmanaban**, a **17-year-old student at McNair Academic High School**, has been selected from thousands of students from more than 90 countries as **one of 18 teenagers** selected as a **global finalist** in the **2014 Google Science Fair**.

Residents can help Eswar win the contest by voting in the "Voter's Choice Award" now through September 14th at www.googlesciencefair.com. The winner will receive a $10,000 grant from Google to help fund the winner's project.

Eswar's invention is what he calls the **"ThereNIM,"** a **touchless respiratory monitoring device** that can be **used in sleep studies for those with sleep apnea**. The ThereNIM (There-*Non Invasive Monitor*) device uses electric fields to detect respiratory movements at a much more efficient and accurate level than current methods of using electrodes. **Compared to current electrode technology**, the ThereNIM would be **less expensive**, with a **price ranging around $50**, **more comfortable**, since there is no contact with the patient, and **less prone to mistakes**, through use of interferences of electric fields produced by the lungs, in which the ThereNIM picks up changes in the frequency produced by the lungs breathing during sleep. The device obtains information through two antennas that would hang from the ceiling on both sides of the patient's bed, so that the patient would be in between them.

"We are proud of Eswar's work and that his project has received global recognition from Google," said **Mayor Fulop**. "We encourage all Jersey City residents to support Eswar in the contest as this is truly an honor for both Eswar and Jersey City. We know Eswar has a bright future and we expect even more great innovations to come."

Eswar Anandapadmanaban was born in India and came to Jersey City in 2001 when he was 4 years old. He attended PS 28 Christa McAuliffe School in the Heights, and then transferred to the Acceleration and Enrichment Program in MS 4 in the 6th grade. Eswar is entering his senior year at McNair Academic High School.

Eswar said he was inspired to create the ThereNIM through his observation of the discomfort of sleep study patients. He watched a documentary about sleep research and current methods of respiratory monitoring.

(more)

Sleep study patients are required to sleep with electrode sensors all over their bodies, which send small electric shocks throughout the body, making it harder and more uncomfortable to sleep. The studies are also very expensive partly due to this sophisticated technology. He was surprised to discover that with modern technology there hadn't been anything invented yet to provide more accurate and efficient monitoring of patients' breathing. This inspired Eswar into taking action.

"My goal was to help doctors around the world save lives without concern of money or resources," **Eswar said**.

Eswar looked to the theremin, a musical instrument, which uses no physical contact and is played by moving the musician's hands between two metal antennas. The position of the hands and the distance between the two hands and between the hands and the theremin produce various pitches. The ThereNIM uses the same technology and technique, replacing a musician's hands with the lungs of a patient and the pitch produced with a monitor that records frequency produced by the lungs.

"My device can be used for sleep studies," **Eswar points out**, "but it can also be used for general monitoring by doctors of Coma patients, burn victims, patients who have gone through anesthesia, and general ward hospital patients. My project basically does what a doctor does with a stethoscope. Except it produces graphs over a longer period of time."

Eswar states that his invention is important because breathing is a major factor in determining many disorders and diseases, and can be used to indicate traumas such as hyperventilation from anesthesia and irregularities that may lead to stroke or heart attack, in addition to sleep apnea.

The Google Science Fair is an online science competition open to **all 13-18 year olds all over the world**. Participants must perform a scientific study using the scientific method, creating a question, come up with a hypothesis, perform research and experiments and collect data, and come up with a conclusion based on their findings. The **grand prize** for the Science Fair includes a **National Geographic trip to the Galapagos Islands and a $50,000 scholarship**. In addition, there are several other awards given for recognition, such as different awards for each age group, a Computer Science Award, a Scientific American Science in Action Award, and the Voter's Choice Award. Eswar has his eyes on the Voter's Choice Award, which will be announced on September 22nd.

Eswar states that science has always been an interest for him, ever since he was young. "I had always enjoyed science as a subject," says Eswar, "because it always answered the questions I had. As a child, science made sense to me because the examples of science were in the world, visible to us. The experimental aspect of science was unique. Each topic could be visibly seen and I loved that."

Eswar says that, "In the future I want to be an electrical or mechanical engineer," and that, "one of my major goals is to make an impact on the world." He also says that the best part of all of this is that he has the potential to change the world for the better. "Being a finalist has brought recognition to my project and that is the most important part of it. Knowing that there are hundreds and thousands of people who now know about my project and acknowledge it makes my months of hard work well worth it."

All media inquiries should be directed to Jennifer Morrill, Press Secretary to Mayor Steven M. Fulop at 201-547-4836 or 201-376-0699. ////