



The Computerworld Honors Program

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Final Copy of Case Study

Status:

Laureate

Year:

2013

Organization Name:

Sensuss

Organization URL:

<http://www.sensuss.com/>

Project Name:

Sensuss Helmet

Please select the category in which you are submitting your entry:

Safety & Security

Please provide an overview of the nominated project. Describe the problem it was intended to solve, the technology or approach used, how it was innovative and any technical or other challenges that had to be overcome for successful implementation and adoption. (In 300 words or less.)

Hockey coach Tim Johannes has been watching kids hit the ice and boards for more than 15 years. Johannes started to think more about the implications of concussions when a player on an opposing team suffered a head injury during a hockey game, then came back into the game for the next period. Johannes began to look into head injuries, concussions and mild traumatic brain injury and what he found was downright scary. Every concussion injures the brain to some extent. This injury needs time and rest to heal properly, but many go undiagnosed due to delayed or misread symptoms. Johannes' idea evolved into the SENSUSS Impact, a helmet with a body area network with multiple sensors. The data is transmitted into the Cloud so coaches, family members, or doctors can all access the data. The SENSUSS Impact offers the ability to customize the

standards for alerts. For instance, if a parent would like to be notified of hits over 60g, instead of the industry standard 100g, they can make the change online. If a player does incur a potentially concussive hit, the application in the Cloud will show the location, symptom chart, and the steps the family or trainer should take next such as a visit to the doctor or emergency room. Alerts can be given via email, text, or phone, and the product itself turns red when it goes off. SENSUSS is achieving impressive accuracy with the new system, reporting a 99 percent positive notification rate if an athlete has sustained a forceful hit.

When was this project implemented or last updated? (Please specify month and year.) Has it incorporated new technologies and/or other innovations since its initial deployment? (In 300 words or less.)

The SENSUSS Impact has been in research and development for the past two years, and is launching in February 2013. Initially the product was a single sensor on a helmet, but it evolved into a body area network with multiple sensors that could connect to the Cloud to aggregate data.

Is implementation of the project complete? If no, please describe the project's phases and which phase the project is now in. (In 300 words or less.)

The research and development phase is complete and the product will launch in February 2013.

Please provide at least one example of how the technology project has benefited a specific individual or organization. Feel free to include personal quotes from individuals who have directly benefited from the work. (In 300 words or less.)

Hockey coach Tim Johannes has been watching kids hit the ice and boards for more than 15 years. Johannes started to think more about the implications of concussions when a player on an opposing team suffered a head injury during a hockey game, then came back into the game for the next period. Doctors later discovered he had a concussion, and Johannes couldn't help but think he should have been sitting out and resting instead of back on the ice. Johannes began to look into head injuries, concussions and mild traumatic brain injury and what he found was downright scary. Every concussion injures the brain to some extent. This injury needs time and rest to heal properly, but many go undiagnosed due to delayed or misread symptoms. "The question that kept repeating in my mind was, is there a way to determine that an impact was forceful enough to cause injury so we can protect athletes who may have a concussion?" Johannes explains. "How can we know whether it is safe for them to get back into the game, as they often want to?" Johannes thought a small ampoule on the back of

a helmet would be the best way to detect impact. He formed SENSUSS and hired Jeff Lawson as Chief Engineer to design the invention electronically. Johannes has had his initial device on his team for 2 years now and every time it has gone off it was a concussion. One time it went off, the player's mother said he looked ok. However, the next day he was very irritable, so she took him to ER and he was in fact concussed. The device is truly helping the coach keep his players safe.

Would this project be considered an innovation, a best practice or other notable advancement that could be adopted by or tailored for other organizations and uses? If yes, please describe that here. (In 300 words or less.)

The SENSUSS Impact is a new innovation in preventative healthcare. It could be adopted for many uses -- first on any type of helmet, construction, all types of sports, and more. Then, the technology could also be adopted on the chest or some other body part that might need to be monitored during high impact activities. It can also be applied in scenarios where individuals might harm themselves, either on a protective helmet or more likely in another wearable garment, such as gloves.

If there are any other details that the judges should know about this project, please note them here. (In 300 words or less.)

SENSUSS Chief Engineer Jeff Lawson adds these details to the product story. "We wanted our solution to alert anyone who might care when a player sustained a hit that could be concussive," said Lawson. "Assessing the impact of a hit is a real challenge, as demonstrated by the fact that the National Hockey League is putting an assistant trainer in the booth with the sole responsibility of watching the players get hit and assessing whether or not they need to get out of the game. We wanted to do that electronically." Eurotech filled the development void for the SENSUSS Impact with a portable off the shelf computer solution, the Helios edge controller. Helios is a programmable edge controller that provides a flexible application-ready hardware platform with cloud-enabled capabilities. SENSUSS would be able to buy the same computer over several years and put it into play, which was important for them. Eurotech's Everyware Device Cloud solution was already on the market as a connectivity option for distributed devices, and it would allow SENSUSS to perform all of the communication between helmets, Helios and involved individuals like parents and coaches in real time. "Eurotech showed us what was possible in terms of providing this essential helmet impact information in the cloud, and they had the solution in place to make it happen." Eurotech's solution was ideal for SENSUSS since it was ready off the shelf, and would take out months of development time and reduces the number of vendors involved in the solution. EDC would free parents



and coaches from having to worry about every little hit in a game. Instead of wondering if every hit was a big hit, parents could rest assured it wasn't as hard as it looked unless the SENSUSS Impact goes off.