



COMMUNITY SUPPORT KEY TO YOUNG INVENTORS' SUCCESS

Community Case Study

SOAR High School InvenTeam helps improve safety and accomplishes something that few teens do – receive a U.S. Patent

Students at SOAR (Students on the Academic Rise) High School, a STEM-focused high school located on a community college campus in Lancaster, Calif., had big plans to invent a solution to a real-world problem. After working through several ideas for an invention, the team of students settled on inventing a blood alcohol content detection wristband. With a grant from the Lemelson-MIT Program for \$9,200, the 2013-2014 Lemelson-MIT InvenTeam got to work on making their idea real.

The wristband the SOAR InvenTeam ultimately invented enables its wearers to blow into the breathalyzer apparatus that quickly responds with three color-coded indicators of blood alcohol levels. The color coding assists the wearer with determining whether they are safe to operate a vehicle. The students wanted to make the wristband low-cost and compact with an appealing design so it would have broad appeal for responsible adults.

With the design of the apparatus and fabrication of the electronic components under way, the InvenTeam began to concentrate more heavily on

fundraising and awareness. Like most inventors, they realized their invention needed to be seen and understood to fully gain community support. Their invention, which aimed to reduce drunk driving, was perfectly suited for community involvement. They set a goal to raise \$12,000, which would cover travel expenses for the entire team to fly to the Massachusetts Institute of Technology (MIT) campus in Cambridge, Mass., to attend Lemelson-MIT's EurekaFest. EurekaFest is a multi-day celebration designed to empower a legacy of inventors through activities that inspire youth and recognize collegiate inventors who also serve as role models to youth.

The 14-member InvenTeam first developed a presentation for their local community that would illustrate how the blood alcohol content detection wristband could be a force in curbing drunk driving. They learned how to target their message, engage potential sponsors, and follow up to thank contributors.

No presentation venue was too big or small for the team – they manned a booth at a nearby Edwards Air Force Base Military Support Group event, got

up at sunrise to present to local Rotary and Kiwanis clubs, and hosted their own community awareness events that included other local organizations focused on reducing drunk driving. They used the feedback they received from the events, including “to have more enthusiasm when presenting,” to continuously improve. They partnered with the Antelope Valley Press, their regional newspaper, to publish articles on the team’s progress. “By the time we presented our prototypes [at EurekaFest] – having presented at numerous community and fundraising functions throughout the school year – our kids were comfortable speaking in front of crowds and were proud to share their accomplishments in inventing,” says Rachel Thibault, a SOAR teacher and InvenTeam advisor.

As word spread of SOAR’s InvenTeam, the community became more interested in the school’s attention to invention-based STEM. A key focus for Antelope Valley business and industry is innovation whose wellspring is invention. The school itself was created just over a decade ago to expand the local skilled workforce by giving underperforming students and students with low socio-economic status a unique chance to immerse in STEM high school and college courses simultaneously. Students graduate from SOAR with a high school diploma and associate’s degree, getting a jump-start on their four-year college degree and, ultimately, a career.

In the couple of months before EurekaFest, the team pared down to five speaking representatives, honed their presentation, and created a GoFundMe page to attract individual donors. They also targeted their fundraising efforts to their peers, racking up contributions from the Antelope Valley College: Associated Student Organization and SOAR High School’s Associated Student Body. Their focused messaging efforts paid off – the team raised enough money to fund their trip to EurekaFest, where their invention was well received by the MIT community. They also used their presentation skills to demonstrate their invention to Bill Nye, The Science Guy, at the 2014 White House Science Fair.

“ Participating in the White House Science Fair brought a great amount of pride to the SOAR

campus,” says SOAR Principal Chris Grado. “It showed our students that even those from the smallest program in the smallest of towns can achieve great heights when they are allowed to express their ingenuity with the proper guidance.”

“ Having the experience to travel to MIT – and later the White House – affected my view of how far I could succeed in my life.”

– InvenTeam participant Jonathan Hernandez, who is now a freshman at the University of California San Diego studying Math and Computer Science



“ I realized the importance of producing a product to the world.” He adds that the opportunity to create another invention drives him in college today.”

With assistance from a patent attorney, the team’s crowning achievement was the awarding of a design patent for their wristband by the U.S. Patent Office.

“I am very proud of the fact that our whole team stuck together and that each pair of hands made some important impact on the realization of [the

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wristband],” Thibault says. “To say we never quit on our goals and we gave our very best effort is incredibly satisfying.”

The SOAR InvenTeam, through their dedication to solve a real-world problem with an invention, has had a lasting impact on their community. Thibault says it brings her great delight “to know that the first-generation kids impacted our school culture so much by leaving a legacy of teamwork, creativity, and determination.” A culture of invention remains in the school district today. SOAR’s feeder junior high school started a Junior Varsity (JV) InvenTeam and invention



continues to be a focus of STEM teachers at the high school and its associated college. “InvenTeam brought a sense of pride not only to the campus, but to the community-at-large,” Grado says. “Everyone from the mayor of Lancaster to local industry, like Lockheed Martin and Northrop Grumman, have inquired about how they can be a part of SOAR and work with our students on projects/internships.”



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(54) **ALCOHOL SENSING BRACELET** (**) **Term:** **15 Years**

(71) **Applicants:** **Keane Hasnar Cabanos Usman**, Palmdale, CA (US); **Jonathan Nguyen Hernandez**, Lancaster, CA (US); **Kendrick Lee Short**, Lancaster, CA (US); **Walter Scott Marquez**, Palmdale, CA (US); **Mery Alaberkyan**, Palmdale, CA (US); **Anahit Ana Topchyan**, Palmdale, CA (US); **Michael He Huang**, West Sacramento, CA (US); **Deandra Dolberry**, Lancaster, CA (US); **Faisal Atanante**, Palmdale, CA (US); **Fanta Sinayoko**, Palmdale, CA (US); **Andrew DeShields**, Palmdale, CA (US); **Daniel Peters**, Palmdale, CA (US); **Branden Cameron Eshrafi**, Palmdale, CA (US); **Rachel Kathleen Makamae Thibault**, Palmdale, CA (US); **Michael Peters**, Palmdale, CA (US); **Andrea Charice Buckner**, Lancaster, CA (US); **Ani Alaberkyan**, Palmdale, CA (US)

(72) **Inventors:** **Keane Hasnar Cabanos Usman**, Palmdale, CA (US); **Jonathan Nguyen Hernandez**, Lancaster, CA (US); **Kendrick Lee Short**, Lancaster, CA (US); **Walter Scott Marquez**, Palmdale, CA (US); **Mery Alaberkyan**, Palmdale, CA (US); **Anahit Ana Topchyan**, Palmdale, CA (US); **Michael He Huang**, West Sacramento, CA (US); **Deandra Dolberry**, Lancaster, CA (US); **Faisal Atanante**, Palmdale, CA (US); **Fanta Sinayoko**, Palmdale, CA (US); **Andrew DeShields**, Palmdale, CA (US); **Daniel Peters**, Palmdale, CA (US); **Branden Cameron Eshrafi**, Palmdale, CA (US); **Rachel Kathleen Makamae Thibault**, Palmdale, CA (US); **Michael Peters**, Palmdale, CA (US); **Andrea Charice Buckner**, Lancaster, CA (US); **Ani Alaberkyan**, Palmdale, CA (US)

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See application file for complete search history.

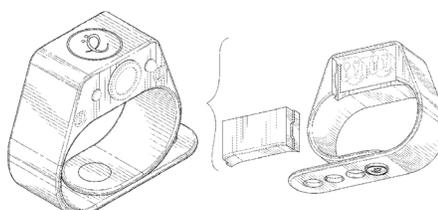
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CLAIM
The ornamental design for an alcohol sensing bracelet, as shown and described.

DESCRIPTION
FIG. 1 is a front perspective view of an alcohol sensing bracelet embodiment;



ABOUT LEMELSON-MIT INVENTEAMSTM

Lemelson-MIT InvenTeams are teams of high school students, educators, and mentors that receive grants up to \$10,000 each to invent technological solutions to real-world problems. InvenTeams research intellectual property, exchange ideas, design parts, build models, and make modifications as they develop their invention prototypes. They learn to move forward through challenges and celebrate “Eureka!” moments, all while cultivating their technical leadership skills. Projects are collaborative efforts, driven by the students. The InvenTeam initiative fosters a “learning-by-doing” environment fueled by inquiry-based thinking.

The InvenTeam initiative is administered by the Lemelson-MIT Program, a sponsored program under the School of Engineering at the Massachusetts Institute of Technology, an institution with a strong ongoing commitment to creating meaningful opportunities for K-12 STEM education. The Lemelson-MIT Program is funded by The Lemelson Foundation. Learn more at lemelson.mit.edu