



Transforming a Science Day Investigation to an Ohio STEP Project

The Ohio Academy of
Science



What We Will Cover

- ◆ What is The Difference Between Science Day and Ohio STEP?
- ◆ How Many of the Sections of the Innovation Canvas Have You Already Completed With Your Science Day Project?
- ◆ Assessing the Commercial Opportunities of Your Research
- ◆ What Additional Information Do You Need To Complete?
- ◆ Benefits to participating in both!

What is The Difference Between Science Day and Ohio STEP?

Science Day

Introduces students to methods and processes used in science and how these approaches are used to discover new knowledge and solve problems.



Ohio STEP

Introduces students to the intersection of STEM innovation and entrepreneurship and equips students with the mindset, skills, and knowledge to navigate the market landscapes of the entrepreneurial world.



Commercialization of Scientific Research

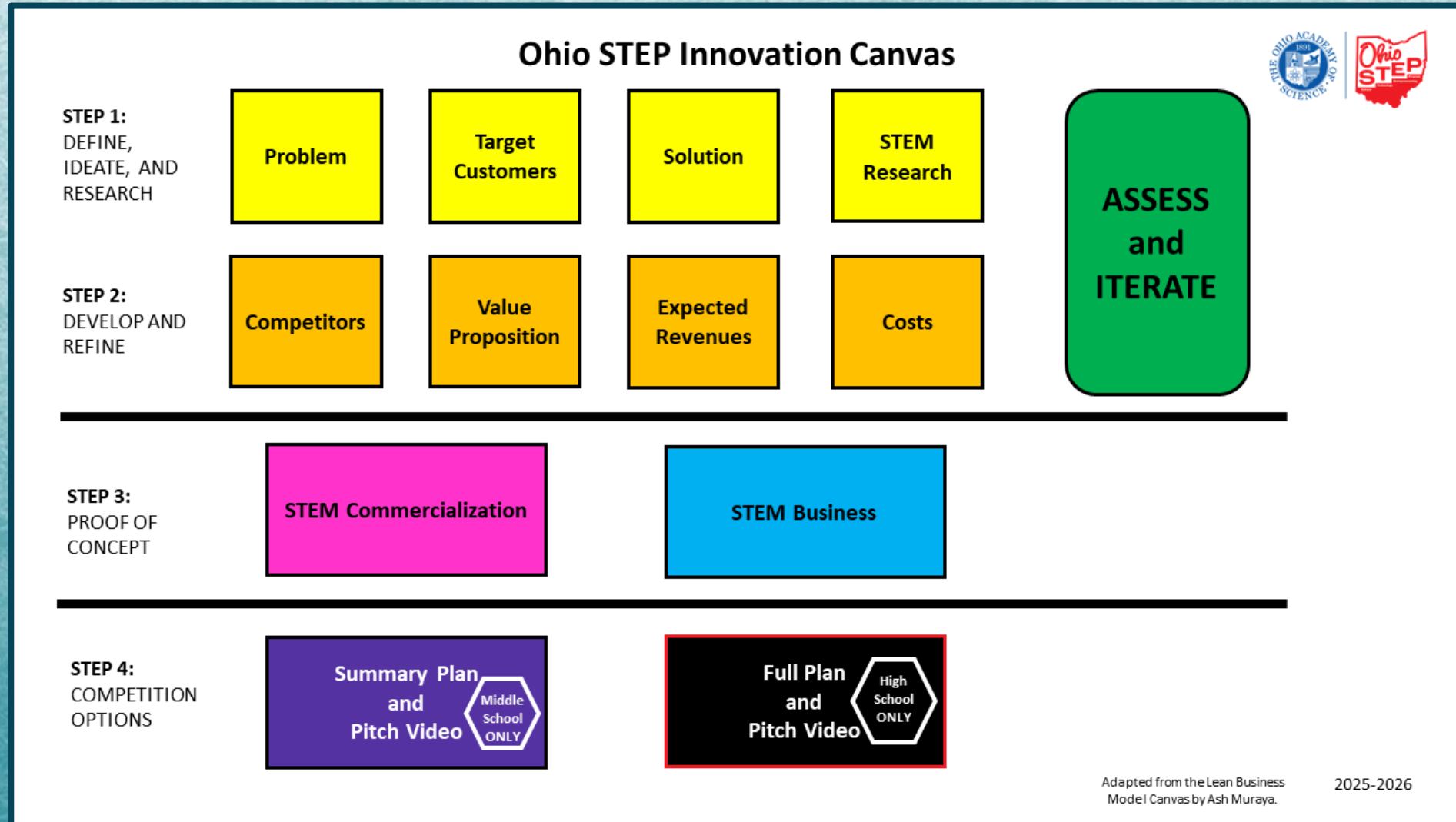
Research: Observations and experiments during research activities often lead to discoveries and inventions.

Research commercialization is the process of transforming scientific discoveries and innovations into marketable products, services, or technologies that generate economic value. This involves moving research findings from laboratory settings through development stages to reach end users in commercial markets.

<https://waitro.org/blog/how-do-research-institutes-commercialize-their-discoveries/>



How Many of the Sections of the Innovation Canvas Have You Completed With Your Science Day Project?



How Many of the Sections of the Innovation Canvas Have You Already Completed With Your Science Day Project?

Scientific Method or Meta Analysis:

1. Identified a question or problem
2. Created your hypothesis
3. Conducted background research

Engineering Design:

1. Identified a problem
2. Developed a solution
3. Conducted background research
4. Designed a prototype



Assessing the Commercial Opportunities of Your Research

Scientific Method or Meta Analysis:

- ◆ Review the research and discussion/conclusion sections of your Science Day report.
- ◆ Can you apply your findings to create an innovative product or service?
- ◆ Can you apply them to create an improvement on an existing product or service?

Engineering Design:

- ◆ Review the research and discussion/conclusion sections of your Science Day report.
- ◆ Have you clearly identified a problem or market opportunity?
- ◆ Have you proposed an innovative solution or an improvement on an existing solution?

STEP 1:
DEFINE,
IDEATE, AND
RESEARCH

Problem

~~Target
Customers~~

Solution

STEM
Research

What Additional Information Do You Need To Complete?

Review each “Ohio STEP Section” and make sure you have addressed any “Action Step” not already included in your Science Day project.

- “Target Customer” Section
- “Solution and STEM Research” Sections
- Focus on STEP 2 of the Innovation Canvas which is the market feasibility section of Ohio STEP.

STEP 1:
DEFINE,
IDEATE, AND
RESEARCH

Problem

Target
Customers

Solution

STEM
Research

STEP 2:
DEVELOP AND
REFINE

Competitors

Value
Proposition

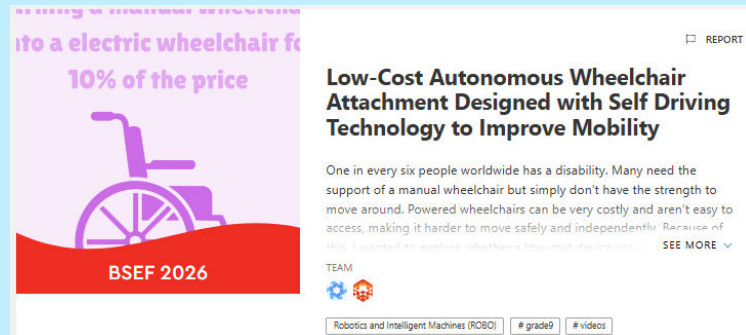
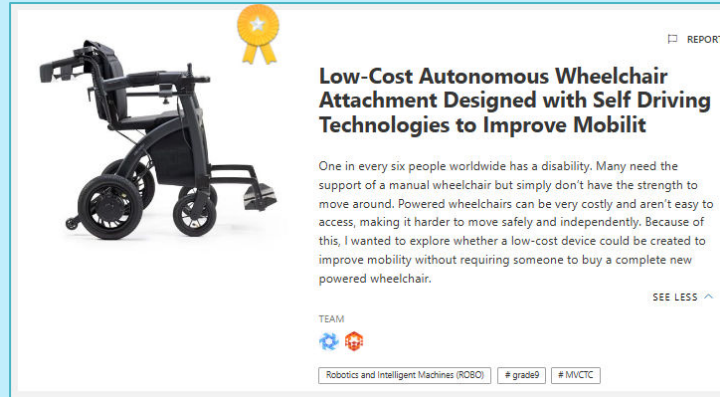
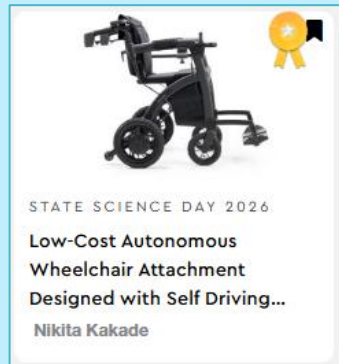
Expected
Revenues

Costs

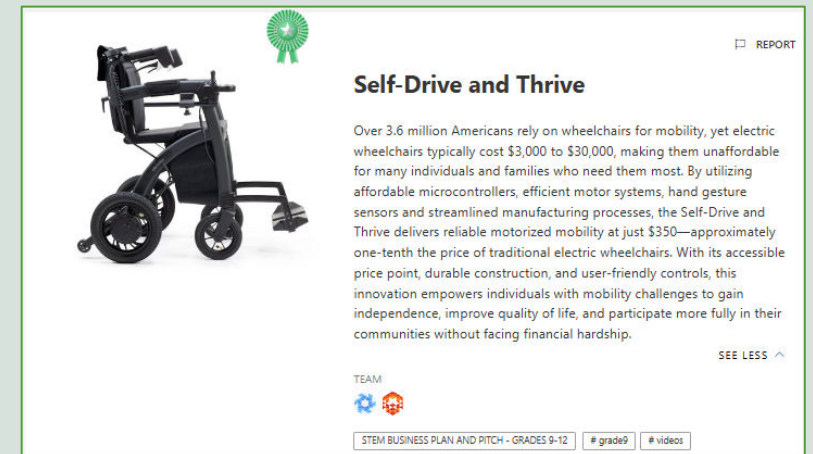
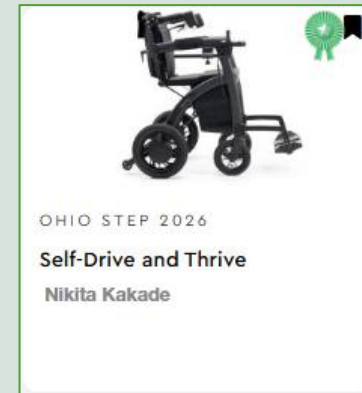
Examples of Science Day Ohio STEP Projects

Nikita Kakade

Science Day Engineering Design



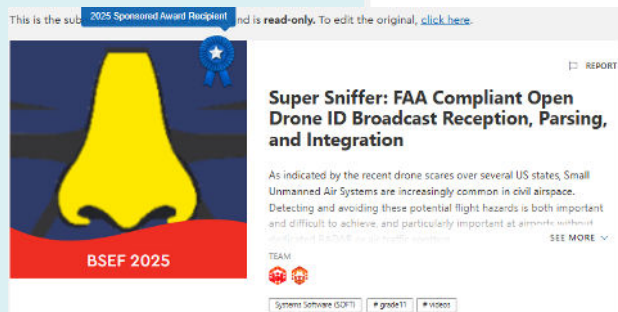
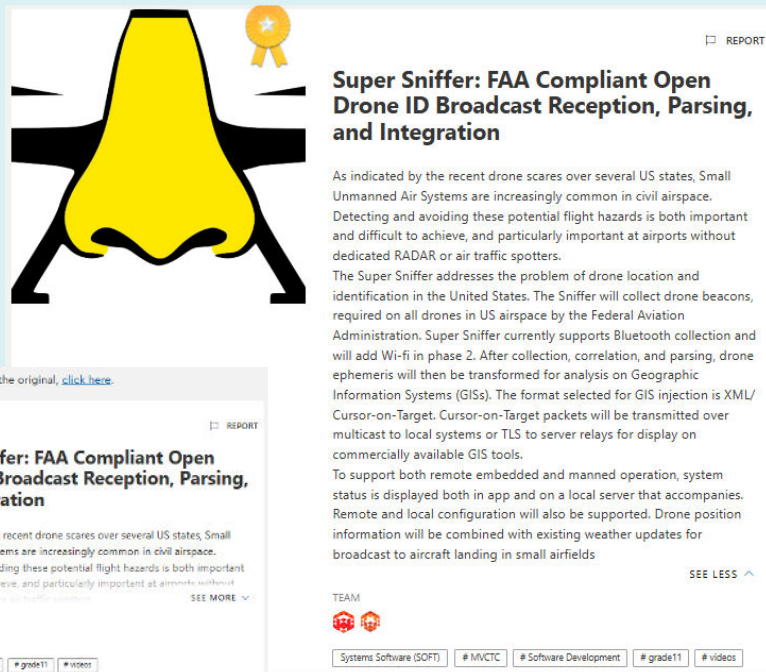
Ohio STEP STEM Business Plan



Examples of Science Day Ohio STEP Projects

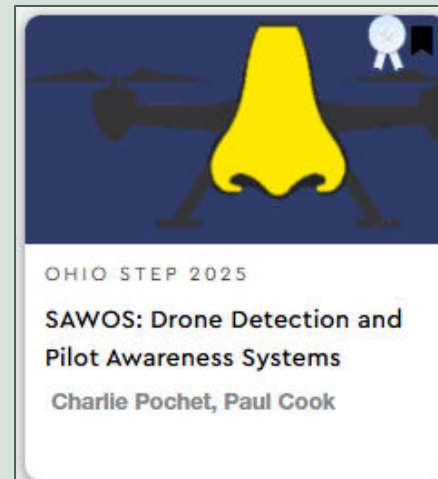
Charlie Pochet

Science Day Hypothesis Based Project



Charlie Pochet and Paul Cook

Ohio STEP STEM Commercialization Plan



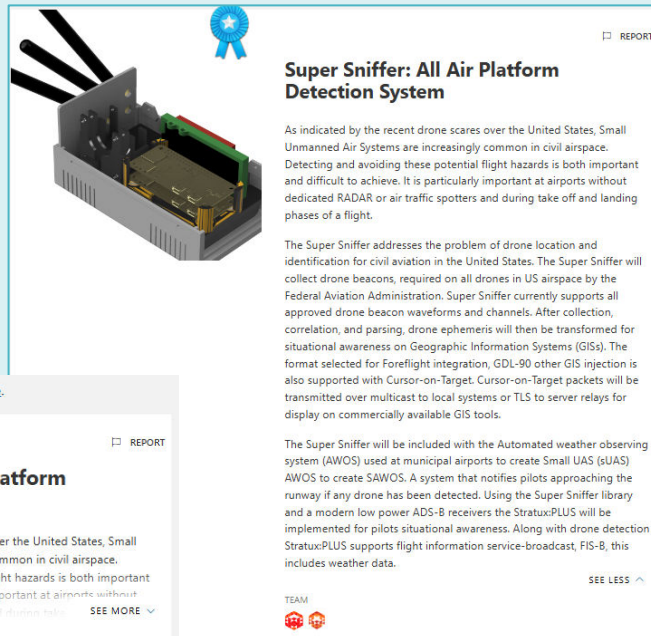
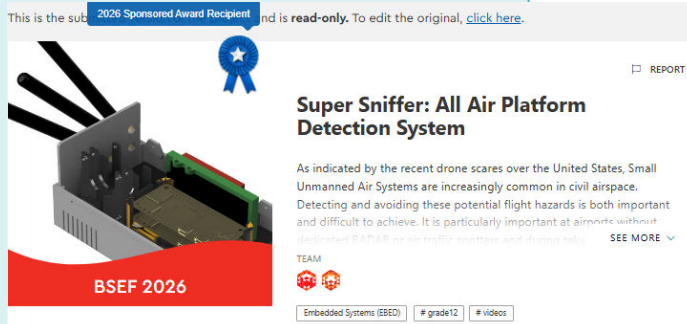
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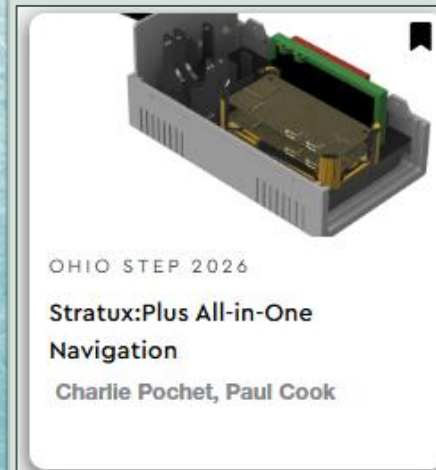


CONTINUATION PROJECT



Charlie Pochet and Paul Cook

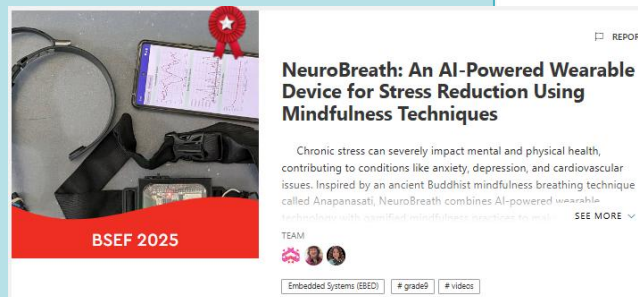
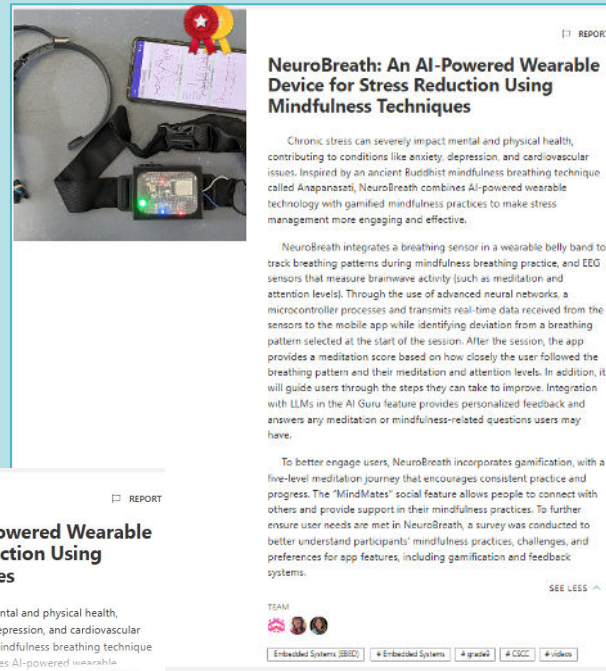
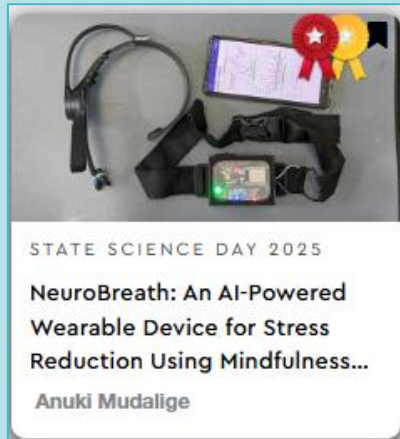
Ohio STEP STEM Commercialization Plan



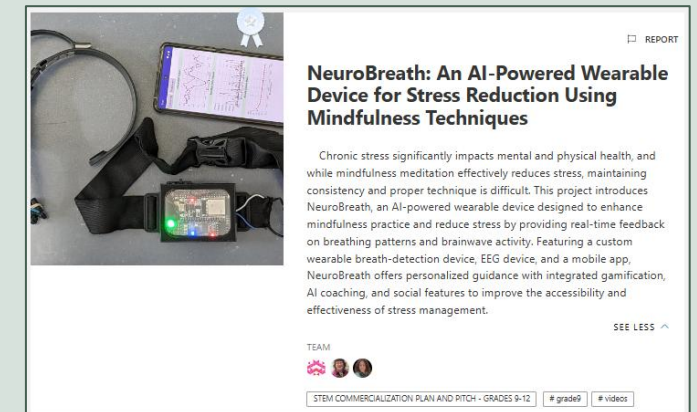
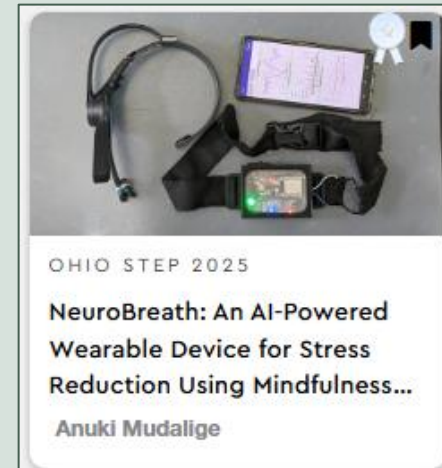
Examples of Science Day Ohio STEP Projects

Anuki Mudalige

Science Day Engineering Design



Ohio STEP STEM Commercialization Plan



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Science Day Engineering Design



STATE SCIENCE DAY 2026

Sensora: A Wearable AI-Powered Sound Detection and Alert System for Enhanced...

Anuki Mudalige

REPORT

Sensora: A Wearable AI-Powered Sound Detection and Alert System for Enhanced Environmental Awareness

Individuals who are deaf or deafblind face serious safety risks because they cannot perceive critical environmental sounds. Existing assistive technologies are often expensive, stationary, or require internet access, limiting accessibility. Sensora addresses these challenges with a low-cost, wearable device that provides instantaneous sound recognition and visual and haptic alerts. The system uses an ESP32 microcontroller and a microphone to capture environmental sounds, which are processed on-device by a neural network for real-time classification. Comparative testing across multiple microcontrollers identified the ESP32 as the most efficient and cost-effective solution for simultaneous sound capture and on-device inference. Its dual-core architecture enabled a "Producer-Consumer" model, with one core handling high-fidelity audio and the other performing neural network inference. The network was trained on a normalized dataset of numerous sounds and optimized to classify alerts within half a second while using minimal memory. Sensora delivers immediate feedback through an OLED display and a vibration motor, allowing users to recognize sounds via visual icons and distinct vibration patterns. Testing demonstrated consistent real-time detection and reliable interpretation of alerts. The device evolved from a basic volume-threshold system into a compact, wearable device with offline operation, costing under \$25. By providing an affordable and reliable solution, Sensora improves safety and independence for deaf and deafblind individuals. The project demonstrates that real-time sound recognition and multi-sensory feedback can be achieved on budget hardware, offering a practical and scalable approach to improving daily life for individuals with hearing impairments.

SEE LESS

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BSEF 2026

Sensora: A Wearable AI-Powered Sound Detection and Alert System for Enhanced Environmental Awareness

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Embedded Systems (EBSD) #grade10 #videos

REPORT

Ohio STEP STEM Commercialization Plan



STATE SCIENCE DAY 2026

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STEM COMMERCIALIZATION PLAN AND PITCH - GRADES 9-12 #grade10 #videos

Benefits to participating in both!

Short Term Benefits:

- ◆ Cash awards and scholarships are available at successive competition levels.
- ◆ These projects provide students with opportunities to explore potential career pathways.

Long Term Benefits:

- ◆ These programs are positive additions to any application or resume.
- ◆ Scholarships and cash awards can help students meet their post-secondary education goals!

Questions?

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<https://www.ohiosci.org/>

<https://partner.projectboard.world/oas/>