

How Weld Central's First Robotics Team Took Home the Championship

Inside the SmartLab where a group of high schoolers built a battle-ready bot and found their STEM identity

KEENESBURG, CO, UNITED STATES, July 23, 2025 /EINPresswire.com/ -- The advanced robotics team from Weld Central High School, working out of their on-campus SmartLab, won the Colorado Battle Bot state championship in their very first year of competition. Their robot, "Dustpan," dominated the arena—defeating the reigning champions in under 30 seconds and earning the highest engineering binder score in competition history.



The "Dust Pan" team celebrates their \$500 first-place win at the 2025 Colorado NRL Competition for outstanding design and engineering.

At Weld Central High School, the SmartLab is more than a classroom—it's a launchpad for discovery. Students begin their journey in STEM 1 and 2, where they rotate through hands-on modules that explore coding, engineering, media design, and robotics. For most, it starts with curiosity. For others, like Jeremiah Huck, it began with a drafting class. But for everyone, it eventually becomes something more: identity.

“

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Marcus Diamond, SmartLab Facilitator

According to SmartLab facilitator Marcus Diamond, that transformation is one of the most powerful outcomes he sees:

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finds their identity in the project... They come in as kids. They leave seeing themselves as engineers, creators, and collaborators.”

This belief underpins the SmartLab philosophy—and nowhere is that more evident than in the

remarkable story of "Max and Friends," a student robotics team that went from rookies to champions in their first year of competition.

The robot they built is called "Dustpan." Inspired by the sloped armor of a WWII T-34 tank, its chassis features a precise 23.2-degree slope designed to deflect high-energy impacts. During testing, they slammed it with weights, hammered it with sledgehammers, and ran simulations to refine its structure. The weapon system was built using a hollow steel shaft and tapered bearings—just like a car axle—to absorb shock from collisions. The bot didn't just survive the arena. It dominated.

Their secret? Collaboration, creativity, and commitment.

The full robotics team included: Isaac Federer 11, Jayden Fischer 10, Dayton Fry D 11, Angel Granados Corral 11, Jeremiah Huck K 10, Blaine Japp 10, Marcus Quinlan 10, Damian Ramirez Sanchez 11, Maxwell Riblett 11, Francisco Sanchez 10, Thomas

Tegtman 11, and Fredrick Wiesenborn 12. Each member contributed to Dustpan's success, and while only a few were available for interviews, the project's outcome reflects the collective effort of all 12 students.

Despite initial skepticism, the idea of using ballistic plastic (similar to Kevlar) became a game-changer after the team explored its strength-to-weight ratio and tested it in their designs. The team's openness to each other's strengths—mechanics, electronics, CAD design—made it all possible.

"We modeled it off the T-34 for deflection. It was picking up trash all the time—we thought, why not call it the Dustpan?" said Jayden Fischer.

When they entered the National Robotics League (NRL) competition for the first time, Max and



NRL First Place Trophy, Check and "The Dust Pan" Robot.



Engagement in the SmartLab and "ah-HA!" moments transform learning experiences and help learners build STEM identity.

Friends didn't expect to sweep the field, but they did just that—defeating the reigning champions in under 30 seconds and leaving other bots in ruins. Their 14-pound bot faced off against 13 others and came out nearly unscathed.

The NRL, an extension of the famed BattleBots league, challenges high schoolers to build dodge-weight bots for a 12x12 arena. In contrast, the pros build 250-pound machines for stadium-sized battles. But the grit, design, and intensity? Identical.

Even more impressive than the robot is the team's engineering binder, which earned the highest score in competition history. It includes:

- CAD blueprints in Fusion 360
- Daily stand-up meeting logs
- A full risk assessment
- Budgeting, vendor communication, and project timelines
- Torque vs. speed calculations, gear ratio decisions, and drive train redesigns

Through robotics, students learn skills with lifelong value:

- Project management: Planning, leadership, and documentation
- Troubleshooting and teamwork: Fixing short circuits, redesigning motor systems, and resolving in-team conflict
- Trade and technical skills: Welding, soldering, gear ratio calculation, and custom CNC design

Their design wasn't built from a kit. While they incorporated pre-manufactured components like electronics and switches, the chassis, weapons, and wiring were fabricated and machined from scratch. This gave the students far more than a technical win. It gave them confidence.

Many now see a path forward in engineering, electronics, or skilled trades. Some already have offers or interest from the military. Four Navy nuclear engineers have come from this very SmartLab.

The Weld Central team had support that made it possible. Key industry sponsors and mentors included:

- Better Process Solutions – design mentorship and on-site visits to their Loveland robotics lab
- B&B Machining – donated machining and CNC work
- Rocky Mountain Waterjet – precision laser cutting
- Local families – provided funds and unused materials (like carbon fiber)

The U.S. Navy has stepped in to sponsor the next round of robotics development, and the NRL helped launch the program with a \$500 grant. The team is now gearing up for a second season—starting fresh with an all-new design, incorporating lessons learned and exploring new materials and mechanisms.

In a rural setting like Weld Central, access to STEM opportunities can be limited. But the SmartLab changes that. It gives students a place to explore, fail, improve, and thrive.

Diamond is candid about the challenges of retention—especially among young women—and the need for active facilitation to keep students engaged. Still, for those who stay, the transformation is clear.

“Max and Friends” will return next year, armed with lessons learned and a vision for bigger things. The team is already brainstorming upgrades, new tactics, and even recruiting future builders from STEM 1.

Dustpan, retired from combat, now sits in the lab like a trophy of possibility—a reminder that identity in STEM is not given. It’s built.

[To discover where you are on your STEM journey, take the STEM assessment.](#)

SmartLab

SmartLab is a career-connected STEM ecosystem that prepare today’s students for tomorrow’s challenges by building a strong STEM identity—one that includes both technical skill and a mindset that prepares students for real careers, whether or not they eventually choose STEM fields.

Each hands-on PBL+STEM solution connects grade-appropriate applications to one of eight industry pathways, helping students solve meaningful problems while developing real-world skills.

SmartLab programs include dedicated classroom setups or flexible modular systems, along with standards-aligned curriculum, teacher training, and ongoing technical and curricular support. Students leave believing: I belong here. I can do this. I add value. I’m future-ready. This mindset takes shape through active, student-centered learning cycles—each ah-HA! moment steadily converting raw curiosity into resilient, purposeful problem solving.

Weld Central High School

Weld Central High School, located in Keenesburg, Colorado, is a comprehensive public high school serving students in grades 9–12 as part of the Weld Re-3J School District. Committed to fostering academic excellence, career readiness, and responsible citizenship, Weld Central offers a wide range of rigorous academic programs, career and technical education (CTE), athletics, and extracurricular opportunities that support the development of well-rounded learners. With a strong emphasis on community, character, and leadership, Weld Central High School nurtures a student-centered environment where every individual is empowered to reach their full potential. Weld Central is proud of its vibrant school spirit, dedicated faculty and staff, and a tradition of excellence that reflects its core mission: “Pursuing excellence for all.” [To learn more about Weld Central, visit https://wchs.re3j.com/.](https://wchs.re3j.com/)

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