For 10 days the energy radiating around Team Neutrino was unmatched. Everyone was excitedly preparing for the Detroit World Championships that we had double-qualified for a week and a half prior. The robot was undergoing strategic updates while team spirit elements were being constructed for the stands. Suddenly, everything froze. There would be no Championship event; the season was suspended and ultimately concluded. Still recovering from shock and grieving the loss of our aspirations, 3928 redirected our energy and excitement toward uplifting our community and discovering new strengths.

For more than a decade, eleven unique rosters have forged a vibrant team which is inspiring, innovative, and driven. In 2011, nine Ames High students laid the groundwork for this year's thriving team of 33 Story County students. 3928's strong roots in tradition and culture provide an unwavering foundation of values while new perspectives serve as the continuously growing branches of our team.

When the number of high school students interested in *FIRST* surpassed our team capacity, 3928 created the Associate role as a less time-intensive opportunity for additional students to learn the same skills as full team members. Without this role, senior and Graphics Manager Humza would not have been able to pursue his interest in graphic design on 3928.

To smoothly integrate NEWtrinos onto the team, 3928 runs annual training camps including Manufacturing, CAD, Programming, Graphics, and Fundraising. This season, we added Mentoring, Outreach, and Prototyping camps. These camps equip students with fundamental skills through goal-oriented projects and real-world experiences. Our Outreach camp planned activities for our 9th year of teaching an Enrich, Empower, Excel (EEE) summer camp session and Prototyping camp brought students through the engineering design process by designing robot mechanisms.

To promote a collaborative environment within 3928, we started a Leadership Core (LC) in 2019. Led by the Captain and Co-Captain, LC gathers student leaders and mentors bi-weekly in the offseason and weekly after kickoff to discuss the direction of the team. This diverse group provides sustainable leadership while encouraging delegation and unity among subteams.

Consistent documentation is part of our culture; since our inception, we have maintained a Tabulated Outreach spreadsheet that records every outreach event and mentored team, providing a basis for future growth. With 40% of our team graduating this year, upgrading existing documentation is imperative. To supplement the season folders, 3928 created a "Timeless" folder. This database is an internal resource and includes presentations, subteam material outlines, and historical records.

3928 fosters the *FIRST* community in Story County, introducing the next generation of leaders, engineers, and innovators to STEM. Since 2014, we have mentored 44 FLL Challenge and 45 FLL Explore teams. When COVID-19 suspended our traditional mentoring programs, we reshaped our efforts to provide students opportunities in uncertain times. In 2020, 11 students spent 505 hours virtually mentoring four middle school FLL teams, showing kids in our community how to craft solutions to complex problems. Former FLL mentee and current 3928

member Maddie stated: “My high school mentors were really knowledgeable about everything LEGO League and it inspired me to pursue robotics in high school and gave me a spark for engineering.” Helping students like Maddie hone their skills and grow as individuals is why we aspire to inspire.

To ensure sustainability in our mentoring programs, 3928 has run our FLL “Unconference” annually since 2019. Unlike a traditional conference, we facilitate open discussions so coaches can exchange ideas about topics such as project presentation tips and how to use sensors on a robot. Coaches and parents from across Iowa join us, networking to create a greater community of FLL leaders.

Reaching beyond our borders, 3928 sustains an international *FIRST* network. In the summer of 2020 we collaborated with FRC 7285 Sneaky Snakes to assist Ashur Robotics, the first Iraqi FRC Team. We provided written resources such as CAD guides and graphics templates and assisted them in developing their own identity standards, logo, and social media accounts. We hosted video calls with both teams to provide insight into running a successful program and recruiting sponsors in the Middle East.

Our outreach’s strength is derived from well-developed relations with community partners, consistent appearances at annual events, and our devotion to STEM. Since our founding, Team Neutrino has spent 9,364 hours building relationships at 207 events. In 2019 we began reimagining our outreach. We introduced Rocket Day in collaboration with WC Rocketry, a high school rocketry team, to commemorate the 50th anniversary of the Apollo 11 mission. Attendees designed, built, and launched bottle rockets while having a blast! That fall, we reached out to the Ames Public Library (APL) to initiate another program: the Month of Cardboard. This underclassmen-led project was hosted over three consecutive Sundays and taught 177 participants about the design process. On the final Sunday, participants collaborated to build a life-size labyrinth with cardboard and Make-Do Kits.

The COVID-19 pandemic challenged us to reimagine our outreach to fit the evolving environment. To promote at-home learning, we created Stay-At-Home STEAM (SAHS), a 27-video Youtube series, in Spring 2020. 3928 continued to supplement learning that fall, working with a local elementary school to develop and deliver 50 STEM kits. Each kit had four activities based on the various aspects of STEM and used lava lamps to introduce density and fractals to teach math.

As restrictions lifted in 2021, we reconnected with existing partners. The Science Center of Iowa (SCI) in central Iowa is one of our longest-held relationships: 3928 has attended 26 SCI events since 2012. Team members are always thrilled to attend, so when SCI mentioned a lack of volunteers at their Mini Maker Faire, we brought 20 students to fill shortages. Locally, 3928 has supported the EEE summer camp since 2012. For the first 3 years, 3928 volunteered for existing classes. From 2015-2019, we designed and taught curriculum relating to robotics, circuitry, and makerspace activities. As the program shifted to a summer school format in 2021, we molded our curriculum to fit within 30-minute blocks. Last summer we taught 11 activities over three weeks. Each week had a separate theme: Space, Light It Up, and Spy School. Through these

classes we reached 80 students from the community, and camp coordinators have expressed their excitement for future collaboration.

Team Neutrino's past outreach paved the way for new connections; of our 56 outreach events since 2019, 40% are first-time events. After creating SAHS, we knew that we could have a greater impact with a longer, more polished series. 3928 reached out to APL about a sequel series, Full Steam Ahead, this time as a kids TV show with eight 25-minute episodes. We've completed filming and begun editing for the show to air on our local City Public Access TV station this year. Through this connection, 3928 was invited to the 2021 Summer Learning Celebration, an APL event at the city pool where we networked with United Way of Story County, one of the organizations behind EEE. After forming a relationship with their Story County Reads director, they reached out to us for another outreach event that fall. We also applied for a United Way grant for EEE 2022 and were awarded $600 to be used on STEM curriculum. Through our collective relationships, we're developing a network of partners who enable us to inspire the next generation.

Team Neutrino values enduring sponsor relationships and also understands the need for new support. In 2021, 3928 employed new fundraising efforts after the pandemic created financial barriers. Team members reached out to new sponsors over email and in-person, created new promotional material to send to potential donors, and held a full team meeting to practice sponsor pitches and brainstorm fundraising avenues. In October, we stepped outside of our comfort zone, hosting the first-ever team garage sale to raise funds and share our presence with the community in an innovative way. The entire team contributed items to sell, and we raised $1,613.25 while reaching a new demographic of community members.

After graduation, our alumni stay as close as family. They check in on the team, crash team parties, and support us any way they can; Bojun, an alumnus now working at Ford, sponsors the team with his startup Ludicrous Creations. Of our 18 mentors, 7 of them are alumni of 3928, including Michael, who returned to the team as a mentor because his interest in engineering stemmed from older students getting younger students "hyped for STEM" and he wanted to do the same.

While Team Neutrino has undergone changes and challenges during the past 11 years, our family atmosphere has only grown. Lively holiday parties, intense soccer and Spike Ball games, and regular movie nights strengthen bonds. When reflecting on his time on the team, Senior Alex says "Team Neutrino is a stress reliever for me to escape from my daily activities; I get to do what I am passionate about while spending time with my friends."

In the 22 months following the cancellation of our "what-could-have-been" season we have embraced the chaos: consistently stepping up to analyze situations, provide creative answers, and effectively implement solutions. We are creating a culture encompassing new ideas and growing from our mistakes, as our failures are stepping stones to our success. With a solid foundation to stand upon, Team Neutrino faces our challenges head on, paving the way for future generations of Neutrinos to break new boundaries and define their own successes.