TEAM DESCRIPTION PAPER

Team ***Tux_3*** competes in the RoboCupJunior Soccer Entry League and represents a continuous development journey driven by teamwork, persistence, and competitive ambition.

Our team was originally formed as two independent teams during the 2025 season. At that time, Henning and Alexander competed under the name Tux_3, while Max and Toni formed Tux_4. Both teams participated in the Berlin regional qualification tournament using LEGO-based robots. Despite working separately, both teams shared a strong interest in robotics, programming, and mechanical problem-solving.

At the Berlin qualification in 2025, both teams achieved strong results: Tux_3 finished in second place, and Tux_4 achieved fourth place. These results allowed both teams to qualify for the German Championship in Nuremberg. Competing at the national level was a major milestone for all of us. It provided valuable experience in high-pressure matches, technical inspections, and structured interviews with judges.

At the German Championship 2025, Tux_3 achieved 8th place and was only one match away from qualifying for the European Championship. Tux_4 finished in 13th place. While we were proud of qualifying and competing at this level, we also recognized areas where we could improve. The experience motivated us to rethink our approach and raise our standards for the following season.

For the 2026 season, we made the strategic decision to merge both teams into one unified team under the name Tux_3. By combining our knowledge, experience, and individual strengths, we aimed to create a stronger and more competitive team. This decision marked a turning point in our development. Instead of continuing with LEGO-based construction, we committed to designing and building a fully custom robot platform using 3D-printed components designed in Autodesk Fusion. This step represented a significant increase in complexity and responsibility, as it required deeper understanding of mechanical design, planning, and testing.

The transition from modular LEGO construction to a fully custom-designed robot required extensive collaboration, redesign cycles, and iterative problem-solving. As a team, we had to improve our communication, distribute responsibilities efficiently, and critically evaluate our design decisions. This process strengthened our teamwork and technical confidence.

Our efforts paid off during the 2026 Berlin qualification tournament, where we achieved second place as a newly merged team. This result confirmed that our decision to combine forces and pursue a more advanced design approach was the right step forward.

Beyond competition results, our primary motivation is continuous improvement. We view RoboCupJunior not only as a tournament but as a long-term learning process. Each season

builds upon the previous one. Each competition highlights new weaknesses to address and new strengths to develop. Our goal is not only to win matches, but to deepen our understanding of robotics, strategic thinking, and engineering problem-solving.

As a team, we value structured preparation, fair play, and analytical reflection after every match. We actively review our performance, identify mistakes, and search for practical improvements. This mindset has helped us evolve from two separate LEGO-based teams into a unified team capable of designing and building a fully custom competition robot.

Team Tux_3 represents growth through experience, collaboration through shared ambition, and constant refinement through competition. We are committed to pushing our limits further in every season and to continuing our development within the RoboCupJunior community.