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| RCJA 2025 Rescue Line, Rescue Maze and Soccer Technical Description Paper |
| Team Information: |
| Challenge/Division: Lightweight Soccer |
| Team Name: Hyperion |
| School: Brisbane Boys’ College |
| State/Territory: Queensland |
| Team Member Names:  If any team member had a specific role, please include this below. |
| Member 1: Matthew Adams (Hardware, Electrical) |
| Member 2: Sam Garg (Software, Movement & Avoidance) |
| Member 3: Luke Atherton (Hardware, Structural) |
| Member 4: Thomas McCabe (Software, Camera Vision) |
| **Robot Properties (200 words recommended maximum, plus components list (if applicable))** Please describe the software (e.g. EV3 Block Code, Python) and hardware (e.g. Spike Prime, EV3, Raspberry Pi) you have used for your robot.  For each piece of software/hardware used, please give it a star rating out of 5 (1=very bad, would not recommend to other teams, 5=very good, would strongly recommend to other teams).  If you have used custom electronics for your robot, please include specific model/part numbers or web links, and a star rating for each. |
| Software:  In terms of software, we use Visual Studio Code as our primary code editor to write, maintain, and manage our projects. Alongside this, we utilise the PlatformIO extension, which provides powerful tools for compiling code, identifying errors efficiently, and uploading firmware seamlessly to our robot. This setup has proven to be both reliable and efficient. We highly recommend this combination (5/5) to other teams—provided they are using a PlatformIO-supported microcontroller, such as the Teensy 4.1, which we currently use in our system. |
| **Collaboration (100 words recommended maximum)** Please describe if your team has used any methodologies, software or systems to aid collaboration (working together). This could be related to the design, construction or programming of the robot(s).  It is the overall desire of RoboCup Junior events that any technological and curricular developments will be shared with other participants after the event. Any developments including new technology and software examples, may be published on the RoboCup Junior website after the event, furthering the mission of RoboCup Junior as an educational initiative. |
| To communicate, our team uses Microsoft Teams and WhatsApp. Furthermore, to ensure save backups, we use GitHub and email. This ensures that we have a backup should something go wrong locally on our computers at any time. |
| **Key Achievement & Area for Improvement (300 words recommended maximum)** Please describe one aspect of your robot your team is particularly proud of, and one aspect you would like to further improve. |
| Specific aspects that we are particularly proud of on the robot include our centring and defender logic. With both the attacker and defender, when the ball is not present, they are coded to “centre” on the field according to either the attacking or defending goal. However, despite these successes, there can be some improvements in other aspects of our robot. This can include implementing a more reliable and consistent method for our out-of-bounds avoidance, and also our line remembrance. Furthermore, we look forward to implementing a kicker and dribbler strategy on our robot in the near future. |
| **Photos and Design Documentation (100 words recommended maximum, plus images)** If there is a design drawing of the robot or if you have photos or notes of the development process, please provide these as proof of your team’s learning. |
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