Shared Autonomy Challenge Approach

RoboCup 2024

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Human Operator Interface

We decided to utilize our existing debugging suite for this challenge. Our `bembelDbug` already had most of what was required for this challenge built-in. This includes a control interface that's usable with both a keyboard and gamepad, as well as a live view of the robot's camera. It also provides a view of the robot's world model.

Figure 1 shows the `bembelDbug` operator interface with the tools used for this challenge.

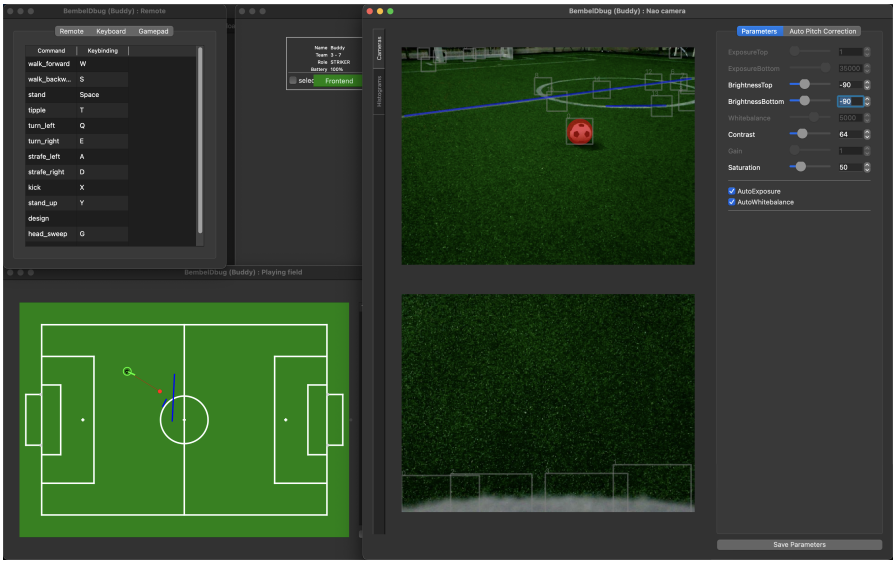

Figure 1: The `bembelDbug` interface

In preparation for the challenge, we improved some parts of the tool. This included enhancements to the keyboard controls, as well as handling for unfavorable network conditions (which are typical at RoboCup).

Operator Commands

We use a manual approach for operating the robots. The human operator has an interface with which it provides commands such as moving in a direction, turning, or shooting. This provides very granular control over what the robot is doing, but requires a skilled operator.

Coordination of the robots

The human-operated robot continues to transmit team communication like it would in normal SPL games. This gives the autonomous robot information about where the ball and the team mate is. Besides that, there is no coordination between the robots.