
RoboCup 2023 Submission Survey

Survey response 1

Software

Team Name
Utra
Is your software fully or partially OpenSource. If so, where can it be found:
Fully OpenSource https://github.com/utra-robosoccer/soccerbot
Do you have a kinematic or dynamic model of your robot(s)? If so, how did you create it (e.g. measure physical robot, export from CAD model)?
Export from CAD model
Are you using Inverse Kinematics? If so what solution (analytic, (pseudo)inverse jacobian, etc...) are you using?
Yes, Analytic solution
Are you simulating your robot? If so what are you using simulation for?
Yes, for testing control and localization and pretty much everything
What approach are you using to generate the robot walking motion?
Dynamically tuned splines curves
What approach are you using to generate motions for standing up?
Manually tuned spline curves
What approach are you using to generate kicking motions?
Manually tuned spline curves
Do you use any other motions than the previously mentioned? If so, what approaches are you using to generate them?
No
Which datasets are you using in your research? If you are using your own datasets, are they public?
Bitbot's torso and ball dataset
What approaches are you using in your robot's visual perception?
Neural network (yolov5) + geometry for ball, opencv for field lines
Are you planning with objects in Cartesian or image space? If you are using Cartesian space, how do you transform between the image space and cartesian space?
Cartesian space. For transformation from image to cartesian space use a simple 2D to 3D camera transformation and assume all objects are all the ground.
How is your robot localizing?
Using a UKF that combines measurements from robot movement odometry and visual odometry calculated using fieldlines
Is your robot planning a path for navigation? Is it avoiding obstacles? How is the plan executed by the robot (e.g. dynamic window approach)?
The path is currently a turn, move forward turn, for short paths and for long paths use a bezier curve. It is not avoiding obstacles. The entire path is executed by the robot in one go until it is cancelled by the strategy
How is the behavior of your robot's structured (e.g. Behavior Trees)? What additional approaches are you using?
The behavior is simply if else logical statements for simplicity
Do you have some form of active vision (i.e. moving the robots camera based on information known about the world)?
The vision is mostly looking for the ball and following the ball when it sees it.

Do you apply some form of filtering on the detected objects (e. g. Kalman filter for ball position)?

No

Is your team performing team communication? Are you using the standard RoboCup Humanoid League protocol? If not, why (e.g. it is missing something you need)?

Yes, and Somewhat, it is derived from the standard protocol but a lot of information is removed because it is not necessary

Please list contributions your team has made to RoboCup

N/A

Please list the scientific publications your team has made since the last application to RoboCup (or if not applicable in the last 2 years).

N/A

Please list the approaches, hardware designs, or code your team is using which were developed by other teams.

A lot of the code for team communication and robot communication to webots is built from Hamburg Bit-bots's open source code

What operating system is running on your robot and which middleware are you using (for example Ubuntu 22.04 and ROS2 Galactic)?

Ubuntu 20.04, ROS1 Noetic

Is there anything else you would like to share that did not fit to the previous questions?

If you have a description document of your software you would like to share, you may do so here.

filecount - If you have a description document of your software you would like to share, you may do so here.

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