

RoboCup Rescue Judge Guide

version 1.0; 2019-06-17

- If in conflict, the posted RoboCup Rescue Rules overrule the rules written here.
- Make a list of teams you are judging with times and test methods for the day. Gather the according forms from the admin station in your clipboard. Have a pen and stopwatch (phone is also OK).
- Familiarize yourself with the **forms**, always fill in all the data (judge name, team name, time). Calculate and fill the scores at the end of the run – the admins will double check later.
- Make sure the **test method is ready** 10 minutes before the run. Check/ plug in the heat pad of the readiness test.
- **Return the filled** out forms to the inbox in the admin area latest after the session is over (12:00 and 18:00).
- Fill out a **form** even for teams that **don't show up** at the test! We need to know we are not missing a form!
- The **cable handler** has to stand **near the start point** and **outside** of the arena (except for EXP tasks: here one cable handler is allowed inside). No persons are allowed in the test method.
- **Penalties:** Unsafe or destructive robot behavior gets a penalty for 50% per event. Ask a TC or Exec member for support if you need to give penalties.
- **Reset:** Touching the robot or calling reset: minimum 2 minute time (penalty), start from last start point. All points are kept.
- One **Operator** only in the booth! Operators may **switch** – switched operators should not (have) observe(d) the robot. Typically **nobody should talk** to the operator – especially not about the robot's state. The judge may forbid all conversations!
- **Timing:** **:00-:03** "prepare for next mission" (**don't let the team start before!**), **:26 End**; Readiness Test available between **:18** and **:26**
- Usually teams get one point per **repetition**. A repetition is typically going from one end to the other.
- **Readiness Test:**
 - Make sure no part of the robot is closer than **40cm** to the board during the 6 identification tests.
 - **Visual:** The orientation of the 3rd biggest C has to be identifiable in the GUI (judgement call!).
 - **Thermal:** The orientation of the 2nd biggest C has to be identifiable in the GUI (judgement call!).
 - **Motion detection:** Obvious motion has to be highlighted in the GUI. Not too many false positives!
 - **Hazmat detection:** Both hazmats have to be correctly identified in at least 50% of the frames.
 - **Audio:** Clear 2-way audio communication! Lag no bigger than 1 second.
 - **CO2:** A clear change in value in the GUI (not on the console or so). Up to 30 second lag is OK.
 - Teams can "hand" the **pen** for touch test to the robot, but not touch the robot.
 - **Touching the robot:** Minimum 2 minute penalty (judge stops the time), drive/ carry back to start.
 - Nobody **touches** the **manipulation board** or **manipulation object!** No repairs to it! If it falls out it stays out – even if it fell out before minute 18! (Exception: if it is clearly not the teams fault the judge may decide to put it back in at the beginning of the readiness test).
 - **After** the readiness test, teams can **resume scoring points**, from where they are now to finish the current repetition.
- **Teleop, Autonomy & Semi-Autonomy:**
 - Be sure to mark the points in the according columns in the form!
 - **Autonomy:** the robot performs one **complete repetition** without the operator controlling the robot. If in doubt you can ask the operator not to touch anything (keyboard, mouse, joystick). 2x points (see the form).
 - If the autonomy has problems, the **operator may take over** and either finish the repetition using teleoperation (1 teleop or semi-autonomous point) or drive back to the start and try again autonomously.
 - **Semi-Autonomy:** During the inspection the committee may have approved certain semi-autonomous functions for certain tasks for this team. If the team **uses the approved function** for (almost) the complete repetition it gets a point in the semi-autonomy column instead of teleop. Ask the teams if they have semi-autonomy. If so, ask a TC or Exec member to help you verify during the run that the repetition qualifies for semi-autonomy.
 - 1.5x points for BIC and 1x for Total – see the form!

- **Maneuvering Tests:**
 - Familiarize yourself with the according tests.
 - Teleoperated robots have to **go back in reverse** (i.e. they are not allowed to turn around in the end zone).
 - Get the **measurements** for MAN 1, 2 and 4 from the admins (the values were collected for each team during the inspection).
 - **MAN 1:** If the robot touches the wall, it has to drive back to where it started (to white or black end) and try again. Note the width that you used in the according space in the form!
 - **MAN 2:** If the robot falls down it has to start from the last start point again. The robot may be placed back on the rail where it fell down by hand without penalty. Note the width that you used in the according space in the form!
 - **MAN 3:** The main body of the robot (flippers don't count) at all times has to completely cover one part of the black line. If this failed, the robot has to go back to the last start point and try again.
 - **MAN 4:** Nothing special.
 - **MAN 5:** The spacing of the sticks is to be adjusted according to the robot dimensions. Note the spacing in the according space in the form. Touching and moving the sticks is OK. If a stick falls out of its socket the robot has to go back to the last start point and try again.
 - **MAN 6:** Nothing special.

- **Mobility Tests:**
 - **MOB 2:** The team should rake the test evenly before the run.
 - **MOB 5:** Make sure that the obstacles are according to the original design (you may be provided a photo).

- **Dexterity Tests:**
 - The **order** in which the individual tasks (touch, rotate, extract, inspect) are done is up to the team.
 - **DEX 1, 2 & 3:**
 - **Every pipe & task has to be tried** (even if physically impossible to do). After 30 seconds the team may move on to the next pipe. After all the pipes from all tasks have been attempted or scored, the team may begin another round, again in the order it wants.
 - The robot **starts outside** of the test area and needs to drive in. On a reset (touching the robot; 2-minute minimum time) the robot needs to start outside again.
 - **No touching/** repairing the test pipes at any time (they can be put back in after all pipes have been attempted).
 - **DEX 4:** One point per door.
 - All doors have to be **attempted in order**. Each door has to be attempted for **at least 30 seconds**.
 - If the teams **gives up an attempt**, a human will open the door and the robot drives through. The robot may then attempt the next door (i.e. if the robot has reached the black end zone, it can then turn around and attempt to go back).
 - So teams may NOT opt to start from the original start zone again if they give up on the 2nd door – they have to try the 2nd door from the other side now.

- **Exploration Tests:**
 - **EXP 1 & 2:** Once the robot has mapped almost all (judgement call) of the maze, the team shows the map to the judge who makes an entry in the form and the team SAVES all the maps (2D and 3D). At the end of the run the team copies the maps on a USB drive of the judge.
 - **EXP 3:** The judge should see the live detection and mapping of the objects in the GUI. Note the first few items in the form. If there are too many don't bother writing all of them down. After the run the TC/ Execs will verify each identification & location using the maps and lists provided by the teams.
 - **EXP 1, 2 & 3:** Points for **autonomy** are only received if almost all of the area is mapped/ explored completely autonomously. At any time the team may take over to make a teleop run. It is acceptable to place one waypoint at the beginning for autonomy – but almost all of the area has to be mapped/ explored (so this strategy will most likely not work). The last run may produce an incomplete map – that is OK (less points).
 - **EXP 4 & 5** have to be done autonomously! It is allowed to set **ONE waypoint** in the beginning.