

Reach Robotics MekaCup Rescue Challenge

Reach Robotics invites teams of talented young engineers to compete in the **Mekacup Challenge**, to be held in the Bristol Robotics Laboratory in March 2019. We will pay your expenses and equip your team to use our robots to attempt the RoboCup Rescue Robot League. The winner will represent Reach Robotics on an expenses-paid trip to compete in the Robocup German Open in May 2019, and if successful in the German qualifier will be sponsored by Reach Robotics to go to Sydney, Australia in July 2019, to compete in Robocup 2019 against international challengers.

http://wiki.robocup.org/Robot_League

Winning Prize

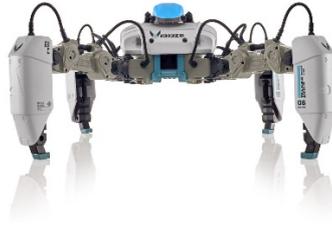
The main prize will be the chance for the winning student team to represent Reach Robotics to the official Robocup Europe qualifier in Germany in May 2019 on all expense paid trip, and a chance to compete in Robocup 2019 in July 2019. Bonus and spot prizes will be awarded for performance in certain areas and with emphasis on ingenuity and style.

The robots and accessories given to the teams remain the property of their respective university department. The universities are free to gift the equipment to the students or use it in other educational projects.

Bear in mind Reach Robotics is a growing startup with employment opportunities for talented graduates!

<https://reachrobotics.com/>

The Robot



Once team registration been approved, we will supply each team with two Mekomon Berserker robots (<https://mekamon.com/>) free of charge, along with add-on control modules based on the Raspberry pi zero-W and accompanying software designed to interface the robot using ROS (Robot Operating System <http://wiki.ros.org/>). The Reach Robotics user guide for this module can be found here. (<https://tinyurl.com/ydfe3qjh>)

The team

We are keen to engage with British universities students with Robotics undergrad or postgrad programs with an interest and aptitude for robotics. We invite you to form teams of 4-5 students each (age 16+) with the cooperation of your course leader. The ideal team will be formed by students currently studying technical related subjects in the Uni, such as computer science, electrical engineering, mechanical engineering, mathematics... etc.

If you would like to take part and compete in MekaCup and RoboCup 2019, please register your team and team members here before 10th December. We will inform the successful applicants by 15th December 2018 latest.

https://docs.google.com/forms/d/e/1FAIpQLSc18L5aQXJF-GHDKhpjgMch1Xoa82OWCbRTpBaRq9DI5W6OAg/viewform?usp=sf_link

MekaCup Rules

We invite you to get creative with the Mekomon to solve as many of the challenges as possible! You are free to physically modify the robots we give you - add sensors, cameras, 3D-print new feet, take the legs apart to modify them, anything you can think of. We have a good supply of spare parts freely available on request if something unexpectedly breaks.

MekaCup will mimic the official RoboCup guidelines as closely as possible, down to the dimensions of obstacles, the type of perception targets, and competition scoring and timing giving your solutions the best possible chance at the official competition.

Please study the official rulebook:

http://wiki.robocup.org/images/3/36/2017-02_RoboCupRescueRulebook_lowres.pdf

Each part of the course will have an operator booth from which your team can operate your base station laptop and any controllers needed. It is perfectly acceptable to remote-control the robot throughout, but significant score bonuses will be available for teams whose system can complete sections or even individual tasks autonomously.

Just as in the official rules, we will be following the general principle of awarding points for distance covered, speed and visual targets identified. Scores will be scaled up for the percentage of the course done autonomously, and penalised for human manipulation of the robot (rescuing it). Detail of scoring will be published by end of December.

The Mekacup arena will necessarily be a subset of the full official arena.

The official competition consists of 4 challenge categories as detailed in the rulebook:

1. Maneuvering
2. Mobility
3. Dexterity
4. Exploration

Please note we will not be building Dexterity tasks as the Mekamon robot does not have a manipulator.

The official competition has perception challenges in the form of simulated victims that should be identified. Often these are constructed at elevated positions or otherwise inaccessible to a small robot like the Mekamon, so we will be modifying these to be more accessible so that our participants can boost their score by attempting this type of challenge if they wish.

While teams may pick and choose which of the available challenges they want to take on, however we encourage team to complete all challenges.

In the lead up to the MekaCup, we suggest each team build their own test obstacles, perception targets and so on at their own universities. The competition arena in the BRL will not be available for practice until the event itself. Please refer to these documents:

The official rulebook, including details of the individual challenges:

http://wiki.robocup.org/images/3/36/2017-02_RoboCupRescueRulebook_lowres.pdf

The official arena build guide:

https://www.nist.gov/sites/default/files/documents/2018/02/23/robocup2018_assemblyguidev2.pdf

Date and Location

MekaCup is a two days event which will take place on beginning of March 2019, at Bristol Robotics Laboratory: T Block, University of the West of England, Frenchay Campus, Coldharbour Lane, Stoke Gifford, Bristol BS16 1QY. Event date will be announced on December 2018.

Day 1

In the morning will consist of an introduction with refreshments, including keynote speeches from our CEO Silas Adekunle, the chance to settle into your workspace and trial runs on the competition course, this is to give a chance for modification of the robot solutions if necessary. Detail of trail run arrangement will be provided on later day.

Day 2

Competition heats will begin, winner will be announced in the afternoon/ evening.

Expenses

Team expenses for attending Mekacup will be covered, including travel and accommodation. We will cover the expense of team who physically attend the Mekacup, after received appropriate invoice after MekaCup. If you have any question regarding to the invoice please contact us.

Accommodation – up to GBP 400 per team

Travel – Up to GBP 150 per person

Food – on the date of event food will be provided by Reach Robotics, any food allergies please specify in the application form.

Contact

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