

Call for Participation

2012 RoboPlay Competitions!

(Robot Dance, Robot Show, and Robot Challenge)

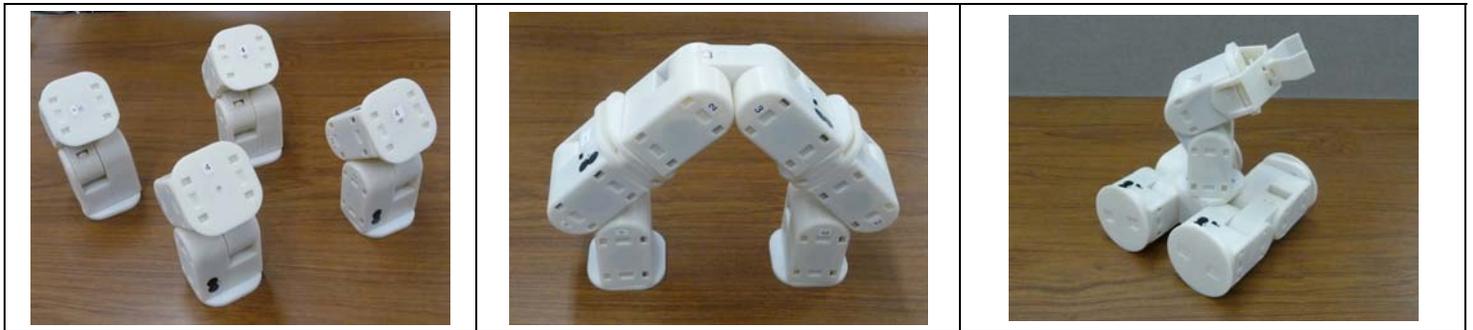
Early registration deadline: March 30, 2012

Final registration deadline: April 15, 2012

Video submission deadline: May 1, 2012

Date for Robot Challenge Competition & Awards Ceremony: UCD C-STEM Day, May 5, 2012

<http://c-stem.ucdavis.edu>



Objectives

The goal of the RoboPlay Competitions is to broaden student participation in computing, science, technology, engineering, and math (C-STEM) education with positive youth development for all students. The RoboPlay teamwork will engage all students including those who might otherwise be inclined to pursue careers in the arts or humanities.

RoboPlay is designed for K-12 students to play robots with fun while exploring their creativity in writing, art, music, choreography, design, and film making and at the same time seamlessly learning C-STEM subjects. The handling of robot coordination between multiple modules and music requires not only teamwork in designing a well-organized visual performance but also the math and programming skills to produce the desired actions for robots. The competitions will enable students working in different interest groups to explore the basic concepts of C-STEM in conjunction with their artistic and music talents.

Mobot, a breakthrough modular robot developed by UC Davis and its industrial partners for K-12 C-STEM education, will be used for RoboPlay. A single Mobot is a fully functional robot with four degrees of freedom. It can roll, crawl, stand, tumble, etc. In addition, like Lego, Mobot can also be used as a building block to create a snake, tank, trunk, humanoid, and any system you can imagine. Each building block is fully programmable, which makes the combined system extremely flexible and versatile. Programming a single Mobot and multiple Mobots can be easily accomplished by K-12 students in grades 5-12.

There are three categories for *RoboPlay Competitions: Robot Dance, Robot Show, and Robot Challenge*. The Robot Dance and Robot Show Competitions are to be submitted as on-line in videos. The Robot Challenge Competition will be held on the UC Davis C-STEM Day. All these robot competitions are open-ended design challenges that integrate math and computer programming with music, choreography, and design for practical real-world problem solving. The rules and guidelines for these competitions are provided below.

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Rules for RoboPlay Competitions

1. RoboPlay Robot Dance Competition (in videos):

A RoboPlay Robot Dance shall present a dance routine with robots and music.

Rules for Robot Dance Competition

- All team members must be students in K-12 schools.
- Each team must use Mobot, a reconfigurable modular robot available from Barobo, Inc., for the competition. There is no limit on the number of Mobots.
- Each dance must be within 1-5 minutes long.
- Each team must submit a software copy of their well-documented Ch code for controlling robots with a standard heading that includes:
 1. Name of each student participant
 2. Name of the school the students are currently enrolled in
 3. Name of teacher advisers
 4. Category (RoboPlay Robot Dance Competition)
- All elements of the robot dance, except music, must be produced originally by the students.
- Any movement of the Mobots must be autonomous and controlled by an original Ch program.
- Scores will be computed based upon:
 1. Creativity
 2. Robot coordination
 3. Robot choreography
 4. Coordination of robot movements and music
- Video submission must be provided in one of the following formats: AVI, WMV, MP4, MKV.
- Video submission must be less than 200MB in size.

Team Registration for Robot Dance Competition

- Each team can have as many members from one school as necessary.
- Teams must register before the deadline
- The registration fee is \$10 for each video submission before the early registration deadline, \$15 for late registration before the video submission deadline
- Up to three student representatives will receive the trophy for the club
- All team members will receive certificates of participation
- T-Shirts and Lunch Tickets for Tercero Dining Commons may be purchased separately.

2. RoboPlay Robot Show Competition (in videos):

A RoboPlay Robot Show shall present a story using robots in a movie style.

Rules for Robot Show Competition

- All team members must be students in K-12 schools
- Each team must use Mobot, a reconfigurable modular robot available from Barobo, Inc., for the competition. There is no limit on the number of Mobots.
- Each show must be within 2-8 minutes long

- Each team must submit a software copy of their well-documented Ch code for controlling robots with a standard heading that includes:
 1. Name of each student participant
 2. Name of the school the students are currently enrolled in
 3. Name of teacher advisers
 4. Category (RoboPlay Robot Show Competition)
- All elements of the Robot Show must be produced originally by the students
- Any movement of the Mobots must be autonomous and controlled by an original Ch program
- Backgrounds, sets, and costumes are recommended, but not required
- Scores will be computed based upon:
 1. Robot coordination
 2. Creativity
 3. Robot choreography
 4. Creativity of the narrative
 5. Artistic appeal (props, backgrounds, scene, etc...)
 6. Sound effects
- Video submission must be provided in one of the following formats: AVI, WMV, MP4, MKV
- Video submission must be less than 400MB in size

Team Registration for Robot Show Competition

- Each team can have as many members from one school as necessary
- Teams must register before the deadline
- The registration fee is \$10 for each video submission before the early registration deadline, \$15 for late registration before the video submission deadline
- Up to three student representatives will receive the trophy for the club
- All team members will receive certificates of participation
- T-Shirts and Lunch Tickets for Tercero Dining Commons may be purchased separately

3. RoboPlay Robot Challenge Competition:

The RoboPlay Robot Challenge Competition is designed for students to showcase their real-world problem solving skills in a competitive environment. This competition simulates an unexpected problem occurring at a remote location such as a space station or planetary habitat, where a robotic solution must be quickly developed and deployed, using only existing resources. The competition challenges students to creatively use modular robots and accessories to complete various tasks. The competition arena and specific challenge will be kept secret until the day of the competition. Using their math, programming, and problem solving skills, students try to most efficiently get the highest score for each task.

Rules for Robot Challenge Competition

- All team members must be students in K-12 schools
- Each team must use Mobot, a reconfigurable modular robot available from Barobo, Inc. for the competition. Each team can use up to 6 Mobots
- Each team must bring its own Mobots and accessories for the competition
- Each team must use their own laptops with all proper software including Ch pre-installed. Each member can have one laptop. Use of other electronics during the competition, including other computers, calculators, cell phones, and other computing devices is not allowed.

- There will be no internet access during the competition. If a team is caught using the internet during the competition, the team will be disqualified.
- Once the competition has begun, the teams may speak to the Judges for clarification on problems, but should not talk to anyone else outside of their team.
- The Competition will last five hours split into two portions.
 - a) The first three hours are for students to solve the math challenge and program their robots to complete the challenge presented at the start of the competition. The solutions must be completed during the first three hours.
 - b) The last two hours are for teams to compete against each other to determine the winners of the Competition.

Team Registration for Robot Challenge Competition

- Each team can have 3 to 5 students
- Each school can have one team
- Teams must register before the deadline to assure that there is enough time and space for all teams on the day of the competition
- Teams that register before the early registration deadline must pay a registration fee of \$60 per team
- Teams that register before the final registration deadline must pay a registration fee of \$80 per team
- T-Shirts and Lunch Tickets for Tercero Dining Commons may be purchased separately for \$15 a piece

Organizer

UC Davis K-14 Outreach Center for Computing and STEM Education (C-STEM)

Co-organizer

UC Davis Computing and Robotics Outreach Club
UC Davis Integration Engineering Laboratory

Contact:

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