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C–STEM Center

2021 RoboPlay Video Competition

Call for Participation

May 8, 2021	**–**	**Registration deadline**
May 15, 2021	**–**	**Video Submission Site Open**
May 22, 2021	**–**	**Video Submission Deadline**
		Registration Fees Due
May 29, 2021	**–**	**RoboPlay Video Competition Winners Announced**

We are looking for K - 12 students to create RoboPlay videos that star C-STEM technology! Students can show off their skills in storytelling, art, music, choreography, design and filmmaking. Students will learn important teamwork skills by designing a visual performance while also learning C-STEM subjects like programming and math as they are used in a real world application.

The subject matter of the videos is wide open. This video competition is for students of all skill levels. It is designed to allow them to compete in any or all of the following judged categories: **storyline, interesting task, choreography, custom part design, computational thinking,** and **advanced robotics and electronics**, as well as a special theme category for this year's competition: **Adventure and Exploration**.

All qualified videos will be judged by our team of C-STEM industry veterans and exhibited during the RoboPlay Challenge Competition. Winners will be announced at the RoboPlay Challenge Competition awards ceremony after the competition.

Divisions

- **Level 1**: Junior Teams with students from elementary and middle schools (grades 5-8)
- **Level 2**: Senior Teams with students from high schools and community colleges (grades 9-12)

Registration Rules

- Each teacher may sponsor an unlimited number of teams.

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Rules for Video Competition

I. Teams:

- All team members must be enrolled in a K-12 school.
- Each team must have 3 or more students contribute to the video. There is no limit on the maximum number of team members.
- Each student may only contribute to one video.
- Each teacher can sponsor an unlimited number of team videos.
- The registration fee is $20 for each video submission.
- No refund after registration fee due date, May 22, 2021.

II. Equipment:

- Each video must use one or more Barobo Linkbot.
- Linkbot accessories from Barobo, including Barobo Arduino and Barobo Raspberry Pi, are allowed but not required.
- Use of Arduino Uno and/or Raspberry Pi boards are encouraged but not required
- Backgrounds, sets, and costumes are highly recommended, especially to stay competitive. (See scoring rubric).
- All parts from C-STEM Center and Barobo are allowed. Custom-designed parts are encouraged, but the documentation for the custom-designed part must be submitted. If the part was rapid prototyped/3D printed, the CAD file(s) must be submitted. If the part was constructed without 3D modeling software, then blueprints, drawings or sketches must be submitted.
- All programs must be written in **Ch**, a C/C++ interpreter, and must run without errors.

III. Video Content Constraints

Videos that do not meet these constraints will be disqualified.

- C-STEM Content
  - All robot movement must be programmed and must be essential to the video. All scenes should focus on robots or C-STEM technology as the primary figures.
  - Submissions are encouraged to be creative and must be tasteful and non-discriminatory.
  - Videos and submitted code must indicate a high level of careful effort:
    - All movement and speaking in the video should be planned before the video is filmed
    - Students should ask their teachers to review their plan before filming the video
    - All movement should be nontrivial. Driving in a straight line for the entire video is considered trivial. A good rule of thumb is to use at least five different commands.
- Each video must be between 1 and 5 minutes long.

- Each video must have a title card with the video's title and school name.
- Each video must end with credits listing:
  - Participating students
  - School Name
  - Teacher Name
  - A list of Ch code filename(s) used to produce the video
  - Attribution or permissions for any Creative Commons or Copyrighted works used
- End credits may be no longer than 15 seconds
- Title cards or scenes featuring all text must be under 5 seconds each.
- All elements of the video, except music, must be produced originally by the students.
  - Videos may not use video content from outside sources.
  - Videos may not plagiarize from other students work both past and present
- If you use copyrighted music, it is the team's responsibility to contact the copyright owner to receive permission. Be aware that if you do not receive appropriate permissions, YouTube may take down your video and you may be disqualified.
  - Sources of Creative Commons music can be found at: http://creativecommons.org/music-communities
- All music used in videos must be properly attributed in the credits, including any permissions to use copyrighted material.

IV. Video Technical Constraints

Videos that do not meet these constraints will be disqualified.

- Video resolution must be at least 480p vertical resolution.
- All videos must be posted to YouTube and be publicly available and embeddable.
- All videos must also be uploaded to the RoboPlay Scoreboard website.
  - Uploaded video file size must be less than 150 MB.
- Supported file formats are: avi, mp4, mov, mkv, and wmv

V. Documentation Requirements

One of the goals of the C-STEM themed video competition is to encourage students to produce documentation as part of their planning process and to enable other students to learn from their video submissions. The goal of comprehensive documentation is that students at a similar level of skill should be able to reproduce a video without having seen the original video.

The following files are required to be submitted with each video:

- Ch (C/C++) Code for all on-screen robot action
  - All videos must have the code used to produce them.
  - See section VI below for complete code requirements.
- A script with all dialogue and stage direction
  - Scripts must include all dialogue present in the video.

- Scripts must include a basic description of the scene/setting, including scene .ch file names (e.g. scene_name01.ch).
- Scripts must include stage directions that explain how the "actors" move relative to the dialog.

■ Technical drawings for custom parts
- To compete in Best Custom Designed Part, documentation for the part **must** be submitted in addition to the video and Ch code.
  - If the part was rapid prototyped/3D printed, the CAD file(s) must be submitted
  - If the part was constructed without 3D modeling software, then blueprints, drawings or sketches must be submitted
- At least a paragraph summarizing both the function and use of the part must be submitted as well.

VI. Ch (C/C++) Code Requirements:

■ Each team must submit a copy of each of their well-documented Ch programs for controlling robots.

■ Failing to submit Ch code will result in disqualification.

■ Ch code must be original and created by students on the team submitting the video. Teachers may act as coaches during the writing process but they may not write any of the lines of code. Multiple teams may not use identical code.

■ Ch code may not be generated by motion capture.

■ The Ch program must represent all motions shown on the video. This may be done as multiple files, each representing a different scene.

■ Each Ch code file must be named with the video's title and scene number.
- For example, if your title is "This is a Wonderful Robo Story", the filenames of the first and second scenes would be:
  - This_is_a_Wonderful_Robo_Story_Scene01.ch
  - This_is_a_Wonderful_Robo_Story_Scene02.ch
- For multiple files controlling multiple characters in a single scene:
  - This_is_a_Wonderful_Robo_Story_Scene01a.ch
  - This_is_a_Wonderful_Robo_Story_Scene01b.ch
  - This_is_a_Wonderful_Robo_Story_Scene01c.ch

■ Each Ch code must start with a standard header that includes the following:

```
/*
  File:
  Video Title:
  Scene #:
  Teacher Advisors:
  School Name:
```

```
 School District:
 Code Written by:
 Student Names:
 Purpose:
*/
```

- This header will be checked programmatically by the website. If it does not appear exactly, you will be informed by the website.
- Download a code template from: **http://c-stem.ucdavis.edu/wp-content/uploads/2017/06/roboplay_code_template.ch**

- Programs should contain comments which link the code with actions occurring on the screen. If you copy and paste the code from Ch examples be sure to replace the comments with your own.

VII. Submitting Team Videos

- In order to compete in the RoboPlay Video Competition, you must submit your video to YouTube as well as to the C-STEM Scoreboard website.
- If you have not created a YouTube account, please follow the instructions in the video at http://www.youtube.com/watch?v=3PFYeXb7fPw to create one.
- **Metadata on YouTube**
  - Title your video "RoboPlay 2020 – YOUR TITLE"
  - The description of your YouTube video should be:
    "Video Entry for the RoboPlay 2020 Video Competition
    Teacher coach: TEACHER NAME
    SCHOOL NAME, DISTRICT NAME, COUNTY NAME
    http://c-stem.ucdavis.edu/roboplay/video/"
  - The video must be tagged "RoboPlay 2020"
  - Video must be set to "public," not "private," and your video must "Allow Embedding"
  - Note: These settings will be strictly enforced by the RoboPlay Scoreboard website.
- Once you upload video submissions to YouTube, you will submit a link to your video on YouTube, upload the video file, Ch code, and any supporting documentation or 3D model files, to the RoboPlay Scoreboard website.
  - Note: when submitting your video to the RoboPlay Scoreboard Website, you need not have the "RoboPlay 2020" prefix on the title.
- *For further information on how to submit a video to YouTube, please see Appendix A in the teacher instructions pdf.*

VIII. Awards

- A team is limited to winning only one category award plus the overall award

- *Teams are strongly encouraged to review the rubric scoring guide for the category they wish to win prior to planning and creating their video. All awards will be judged and rewarded based on the rubric that is outlined on the rubric page.*

- Award categories:
  - **Best Storyline**
    Videos that include characters and plot that engage the audience.
  - **Best Choreography**
    Videos with synchronization of robots to music.
  - **Most Interesting Task**
    Videos that include demonstrations of robots completing a task (such as making coffee).
  - **Best Custom Designed Part**
    Videos that complete an interesting task or performs an interesting motion through the use of an original designed and built part. Students of average skill should be able to reproduce part(s) with the provided documentation.
  - **Best Film Promoting Computational Thinking**
    Videos that include complex, well defined code.
  - **Best use of Advanced Robotics and Electronics**
    Videos that incorporate advanced electronics such as Arduino and Raspberry Pi
  - **Best Video on Adventure and Exploration**
    Awarded to the video that best represents our Theme of the Year.
  - **Best Overall Video**
    Awarded to the video averaged the highest in Storyline, Choreography, Most Interesting Task, and Film Promoting Computational Thinking. This may be awarded independently or in addition to any of the other awards.

Videos from the 2016 competition posted here
http://scoreboard.c-stem.ucdavis.edu/video_list/4

Videos from the 2017 competition posted here
http://scoreboard.c-stem.ucdavis.edu/video_list/5

Videos from the 2018 competition posted here
http://scoreboard.c-stem.ucdavis.edu/video_list/6

Videos from the 2019 competition posted here
http://scoreboard.c-stem.ucdavis.edu/video_list/7

Registration Instructions
There are three registration steps: Registration, Payment, and Scoreboard Video Submission.

- Registration must be completed by the supporting teacher online before 11:59pm on May 8, 2021
- Videos must be submitted on Scoreboard. Scoreboard will open for video submissions on May 15, 2021, and close on May 22, 2021.
- Payment must be received in full before May 22, 2021.

Teams that have not been completed all three registration steps by the May 8 deadline will be excluded from the competition.

Organizer

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