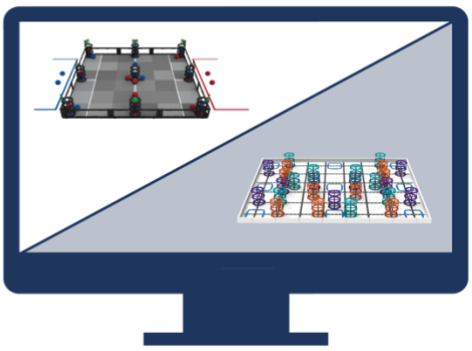


VEX IQ Challenge

Live Remote Tournaments (LRT)

Team Setup & Instructions

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Introduction to Live Remote Tournament (LRT) Gameplay

Live Remote Tournament (LRT) gameplay is a new format developed by the REC Foundation for the 2020-2021 competition season. LRT gameplay allows teams to compete remotely in live interactive competitions using a web-based portal through RobotEvents.com. The purpose of this document is to outline the technical requirements, equipment set up, and event instructions for registered VIQC teams to compete in Live Remote Tournaments.

Teams participating in Live Remote Tournaments must be proactive and detail oriented in preparing for and participating in these events. Many aspects of the competition that might have been handled by volunteers, including proper field setup, and reset, and queuing teams for their upcoming match, are responsibilities that now fall to team members and their designated adult team Facilitator - the coach or other responsible adult who will be supervising students during the event. Failure to follow proper procedures may result in substantial delays to the event and/or an inability of a team to participate in the event.

In a Live Remote Tournament, the VIQC Rise Above Teamwork Challenge is played by an Alliance composed of two Teams operating under driver control. Each Team competes on a separate field (i.e., there are two Robots, two Teams, and two fields in each Match). An Alliance's score at the end of a Match is calculated by combining the fields of each Team. The object of the game is to attain the highest score by Scoring and Stacking Risers in Goals, Completing Rows, and Completing Stacks.

For the full game rules, please consult the current version of the VEX IQ Game Manual, including the section on Live Remote Tournament Rules.

All student and adult participants must abide by the REC Foundation Student Centered Policy as noted in rule **<G2>** , and the REC Foundation Code of Conduct as noted in rule **<G1>** of the Game Manual.

LRT Coach/Mentor Team Facilitator Policy

The REC Foundation provides a number of remote competition options for teams. By registering and participating in remote competitions, your team is required to perform additional tasks and engage in a heightened level of event preparation. This document outlines the roles and responsibilities for the coach or mentor who registers their team for a Live Remote Tournament.

While remote competitions provide an opportunity for student-centered engagement, many of the challenges with remote competitions result from teams being unprepared (e.g., failing to properly set up their fields or equipment, not reading the Game Rules or other documentation related to Live Remote Tournaments). As a robotics community, we want every participant to have a positive competition experience, which is why we are providing this guidance to coaches and mentors who participate in Live Remote Tournaments.

All teams registered for a Live Remote Tournament will need to appoint a team Facilitator to ensure the integrity of the event. At a minimum, the Facilitator will:

- Be an adult of 18 years or older and not enrolled in high school. The Facilitator can be the Coach, the Primary Contact, or an adult Mentor.
- Provide their full name at the start of the event.
- The Facilitator will also provide the Event Partner with a day of contact phone number prior to the event.
- Read and be familiar with the current game and the Live Remote Tournament rules as listed in the VRC Game Manual or VEX IQ Game Manual.
- Read all REC Foundation documentation and understand the requirements for teams participating in Live Remote Tournaments, including the LRT Team Instructions [link to be provided once doc is finalized for release]; and the LRT Team Inspection Checklist [link to be provided - the two docs may be combined].

The Facilitator must:

- ❑ Review all aspects of the event on RobotEvents.com prior to registering, and review and follow up on all communications from the Event Partner in a timely manner.
- ❑ **Pre-Event Setup**: Read, understand, and follow all items covered in the LRT Team Instructions and the LRT Team Inspection Checklist, including correct field setup. If you have a question or concern, you need to raise this issue well before the event.
- ❑ **Inspection**: Ensure the team can confirm that the team's robot is ready to pass an official inspection using the VRC Inspection Form or the VEX IQ Inspection Form.
- ❑ **Safety**: Ensure that all equipment is safely set up and that all local health and safety rules are being enforced; see REC Foundation Covid-19 Policy - Student Safety at Remote Events (found in the Documents tab for all event pages on RobotEvents.com).
- ❑ **Match Readiness**: Ensure the team is ready before every match! Actively monitor the match schedule for the team, and ensure the team and field are ready 2 to 3 matches prior to your match; teams must not practice on their field during this time. Additionally:
    - ❑ Field is ready with all game elements appropriately placed.
    - ❑ Confirm the placement of game objects - pre-match (each match).
    - ❑ Confirm that the robot placement is as per the Game Manual.
    - ❑ Confirm that the field layout including the camera alignment checklist [insert link to doc] has been completed.
    - ❑ Confirm that the camera is operational, aligned with appropriate lighting capturing the full field.
    - ❑ Confirm adequate sound communication with the Head Referee and Event Partner.
- ❑ **Scoring**: Ensure the Drive Team confirms the Match score at the end of each Match. Per the Game Manuals, any questions of scoring must be raised by Drive Team members only. The Facilitator will not make a ruling or provide any opinion as to any aspect of the Match. This is the sole responsibility of the Head Referee.

- ❑ **Physical Presence**: The Facilitator must be physically present at all times at the immediate location where the Live Remote Tournament matches are occurring and may not be in another room or nearby at the site.

Every coach or mentor who registers their team for a Live Remote Tournament should meet these responsibilities. The failure to follow all of these tasks may result in a negative experience for your team and other event participants, and in some instances, may result in a violation of G1 and the REC Foundation Code of Conduct. The REC Foundation, our Event Partners and all participating teams need and appreciate your commitment and support in achieving a quality competition experience.

Document Overview

The instructions in this guide are divided into five sections:

Section 1: Technology & Equipment Requirements

This section will explain the technology and equipment requirements needed to participate in a Live Remote Tournament

Section 2: Field and Technology Setup

This section will explain best practices for setting up your field and equipment. It does not replace the Field Inspection document, but rather is an annotated guide for meeting those requirements

Section 3: Connecting to an Event Procedures

This section will show the step-by-step procedures teams will follow to connect to an event.

Section 4: In-Event Procedures

This section will show the step-by-step procedures teams will follow while in the event.

Section 5: Troubleshooting

This section will give guidance on how to solve common issues.

Section 1: Technology & Equipment Requirements

Note: All equipment should be set up and dedicated to a single team in the tournament - teams are unable to share equipment with this format.

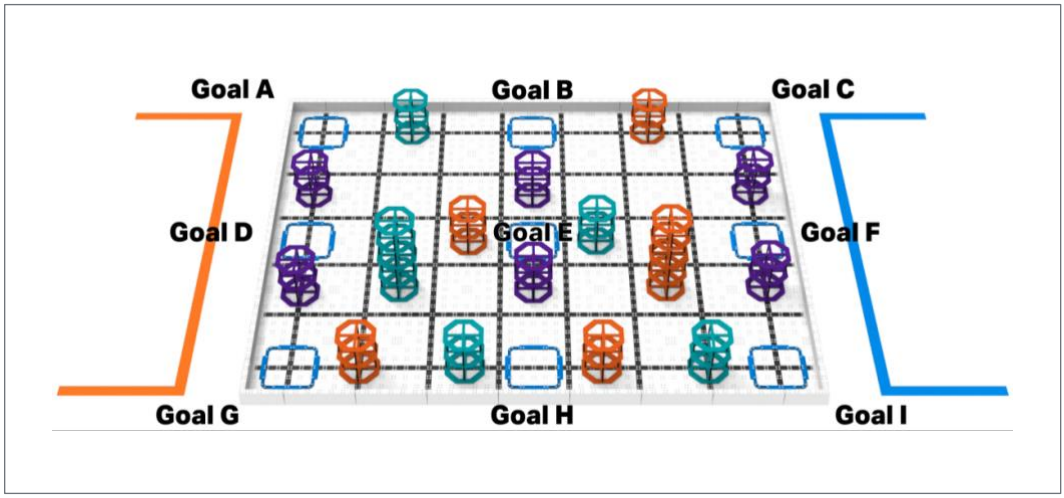
Technology & Equipment Requirements

- Active and paid team registration on RobotEvents.com
- Full competition field and game elements (VIQC)
- Computer solely dedicated to using the Live Remote Tournament platform on RobotEvents.com.
    - Chrome web browser installed
- Broadband Internet access
- Connected USB webcam (720p or higher resolution) that can be set up to provide a full view of the field and driver station; a tripod or other device may be needed to hold the camera in place.
- VIQC Robot with updated firmware
- An additional monitor or TV screen/projector for viewing your alliance partner as well as Event Chat from the driver station.

Safety Note: Like an in-person event, Teams must ensure that they can set up their equipment and field safely in accordance with the Game Manual and Safety Rule <S1>.

Section 2: Field & Technology Setup

VEX IQ Field Setup



- ❑ Team's camera must be placed on the "audience side" of the field, i.e. Goal A should be in the upper left corner of the webcam feed. **As per rules <LRT1> and <RSE7>** in the VEX IQ Game Manual
- ❑ The Driver(s), Robot, Controller, and **complete & unobstructed competition field including the field perimeter** must remain on camera at all times during the match.
    - A starting recommendation is to place your web camera 4 feet back from the field and 5 feet above the level of the field, but the exact camera placement is dependent on your camera and setup.
- ❑ Field should be properly set up as shown in the above image in accordance with rule **<LRT3>**
- ❑ Teams are responsible for setting up their own fields - please keep a copy of the above diagram handy for reference and reset your field in a timely manner.

As per rules **<LRT1> <RSE7>** in the VEX IQ Game Manual

- Team's camera must be placed on the "audience side" of the field, i.e. the Orange Driver Station on the left side of the screen.
- The Driver(s), Robot, Controller, and complete competition field must remain on camera at all times during the match.

VEX IQ Camera & Technology Setup

Computer/Technology Requirements:

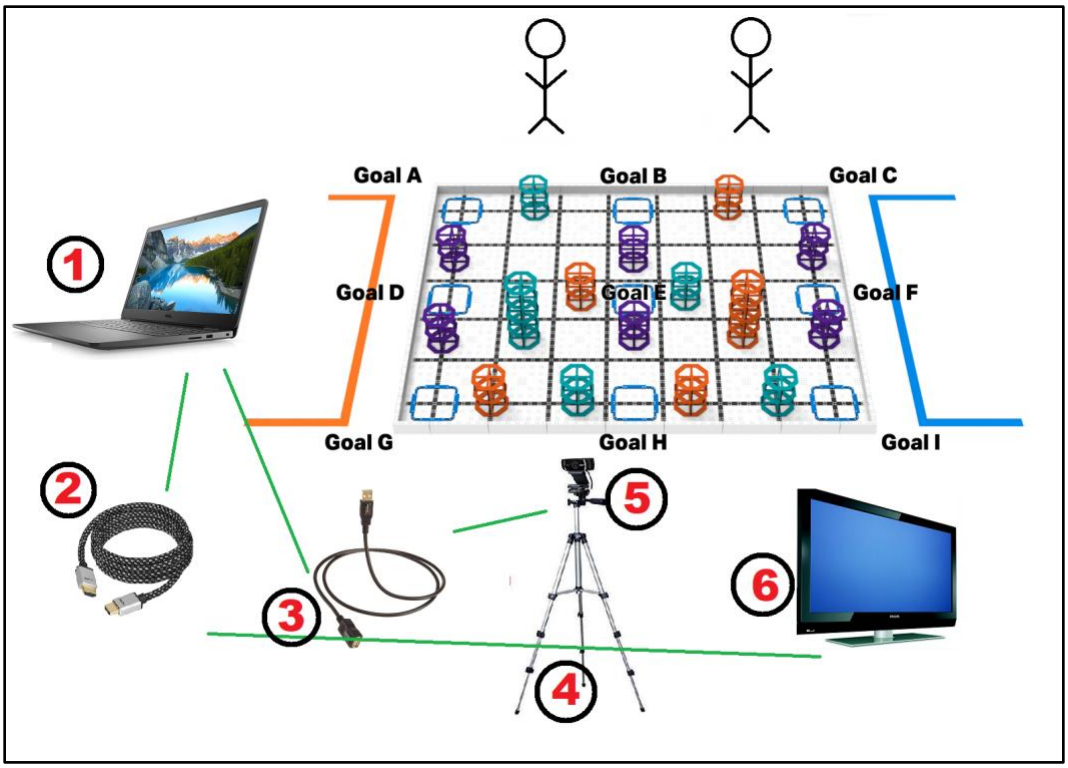
- ❑ A computer (LRT Computer) with Chrome browser installed.
  - **Note:** This computer must be solely dedicated to using the Live Remote Tournament platform on RobotEvents.com and cannot run other video streamlining tools or apps (e.g., Discord, Zoom, etc.) during the event as it prevents video from appearing correctly.
  - **Note:** It is recommended that teams have enough slack in their camera connection to prevent the unintended movement of the camera, possibly using a 10 foot or less USB extension cable.
- ❑ External USB Webcam (720p or higher resolution) connected to LRT Computer
- ❑ Camera is set up to provide a full view of the field and driver station.
  Note: This **cannot** be an integrated camera. It must be an **external USB** camera.
- ❑ The camera must be mounted to a tripod, stand, or fixture.
- ❑ The field and camera should be well lit with even and consistent light sources.
  Note: Windows and off-color light sources should be avoided.

Recommended:

- ❑ A large monitor or screen for viewing your partner's field and the Event Chat from the driver's station.
  Note: This may require running a cable from a laptop or computer to a larger screen more conveniently placed
- ❑ External speakers for hearing match sounds clearly from your driver's station.

All cables should be taped down to prevent tripping hazards, and the setup for all electronics must maintain the safety of participants as a top priority.

Example Technology & Field Layout



This image is a sample diagram of the equipment you will need to participate in a Live Remote Tournament. Labeled items:

1. Laptop or computer
2. Video cable to connect to a larger screen
3. USB extension cable to connect computer to camera. (This may not be needed depending on your setup/equipment)
4. Camera tripod or stand
5. USB web camera
6. Large display for viewing the match from the driver's position

Pre-Event Camera and Video Set-Up

Teams should test their computer setup ahead of the event, including webcam, microphone, and speakers. Testing in advance gives teams time to troubleshoot issues before competing.

You can test out your webcam and computer in the practice.robotevents.com system. If you are not able to view your webcam or get your computer to work on practice.robotevents.com please contact centralsupport@roboticseducation.org or use the chat on the bottom right-hand side of the screen.

It is recommended that teams set up a large TV/monitor, if available, to be able to extend their monitors to be able to view other teams' fields better. We would also suggest an external set of speakers pointed at the driver's station so teams can clearly hear the audio stream.

Team Communications

Teams should make use of the Live Remote Tournament in-event chat feature in the upper right corner of the interface to contact the Tournament Operator and other teams. When teams use the chat feature to talk directly with each other, that information is not shared with other teams or the Tournament Operator.

For emergency communications (i.e., a team's Internet goes down and they cannot communicate with the event) teams should provide the Event Partner with the contact information for the team Facilitator - the coach or other responsible adult who will be supervising Students during the event. If you have questions about the event, The Event Partner's event day contact information is found on the event's General Information page on RobotEvents.com.

Section 3: Connecting to Event Procedure

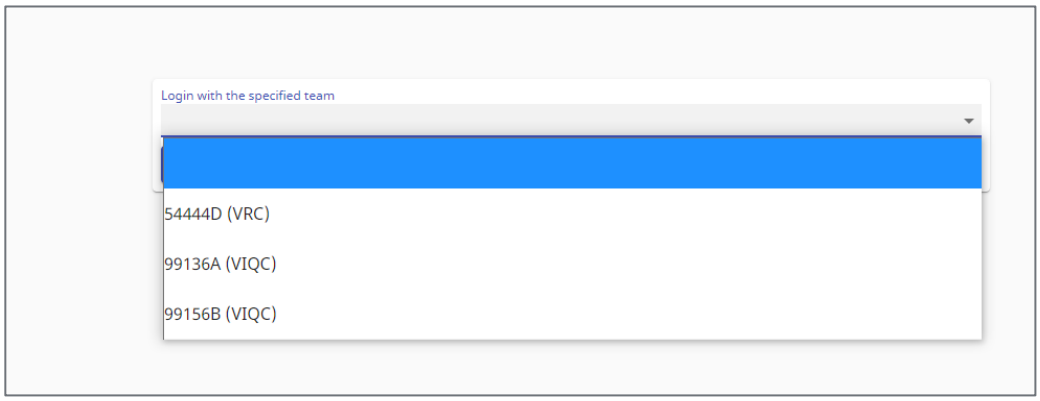
Step 1: Registering for the Event

Teams need to be registered for the correct Live Remote Tournament on RobotEvents.com.

Step 2: Logging into the System

On the day of the event, the coach of the registered team needs to be logged into their RobotEvents.com account via the Google Chrome web browser on the same computer the team will be using for audio and video for the Live Remote Tournament.

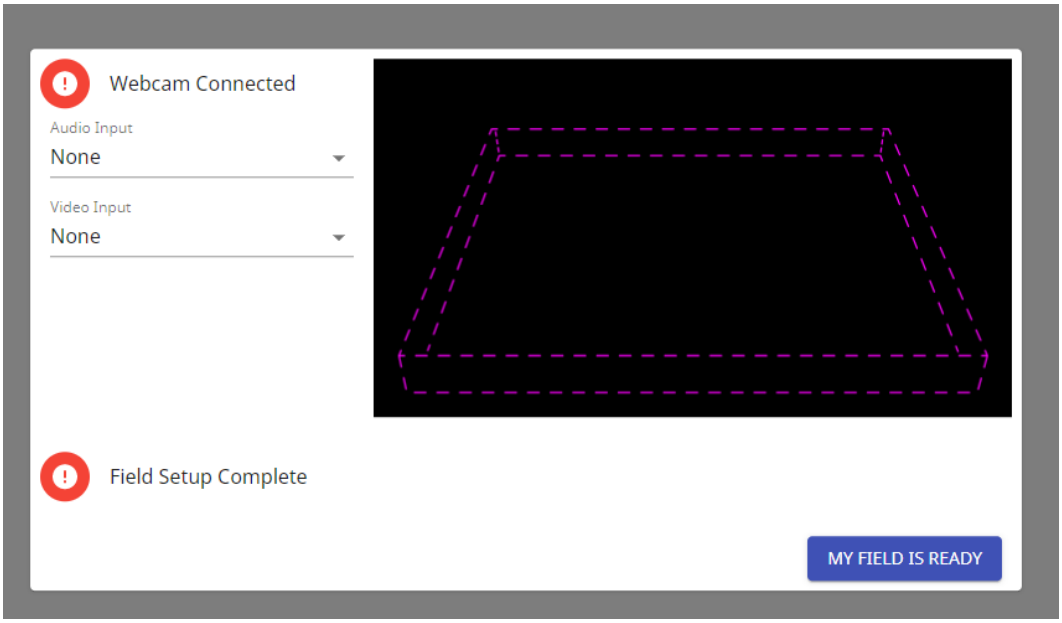
Once logged in, the coach should go to remote.robotevents.com and select the correct team registered for the event from the dropdown menu. If you have selected the incorrect team, you may be able to change it via the gear icon on the top right-hand side of the screen and select "Change Teams."



All teams in a coach's RobotEvents.com account should appear in a drop-down list. Only one team can be selected per computer.

Step 3: Setting up Audio & Video Inputs

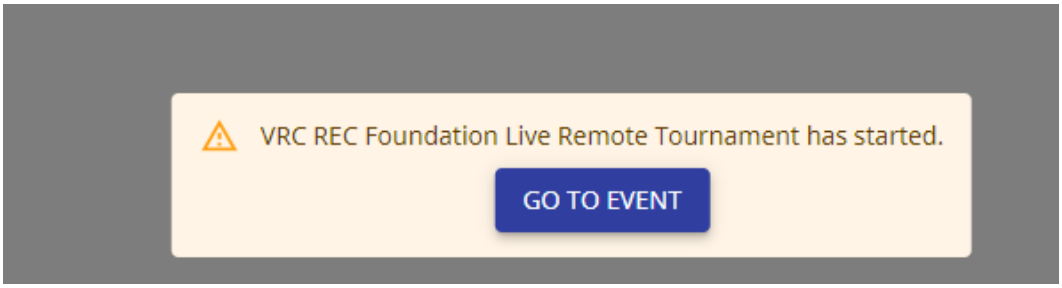
Once the team logs into the RobotEvents.com remote system, the team will be asked to connect their webcam (and be prompted to make sure their field fits in the purple outline) and select their microphone.



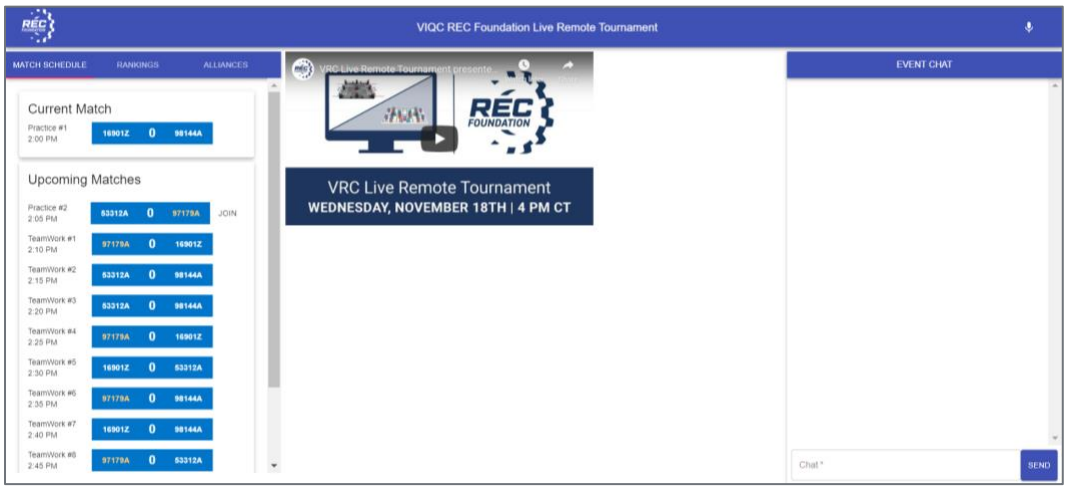
Step 4: Joining the Tournament

If the team logs on before the Tournament Operator has started the event, the team will be sent to the practice match lobby at practice.robotevents.com.

Once the Tournament Operator has started the event, the team will see a pop up on the bottom of the screen that will allow them to join the event by selecting “Go to Event.” While all the teams are joining, teams will be automatically joined to the event lobby in which the team can communicate with the other teams via the chat on the right-hand side of the screen. The team will remain in the lobby until the Tournament Operator starts a match the team is participating in.



This is the pop-up notification that a Tournament Operator has started an event that a team is registered for.



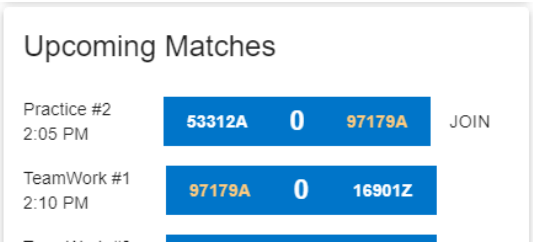
This is a view of the lobby screen, with the match list on the left and event chat on the right, with the audience display in the center. A team's number will be highlighted in yellow for their upcoming matches.

Section 4: In-Event Procedures

Step 1: Joining a Match

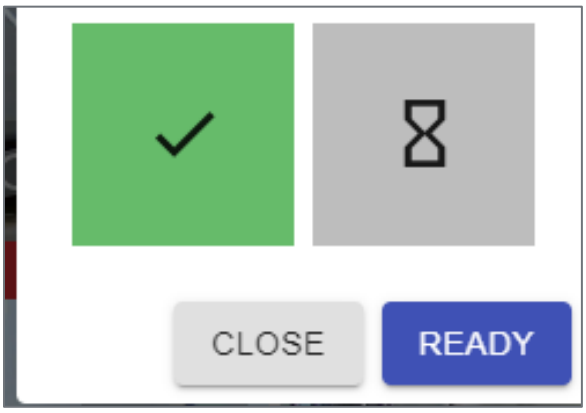
Once the Tournament has been started by the Tournament Operator, the team will need to select "Join" to enter the match. Teams should plan on joining their match a few matches ahead of time to make sure their video is working and strategize with their partner.

Note: If teams do not join the match, they will be automatically joined to the match when the Tournament Operator clicks on the "Start Match" button.



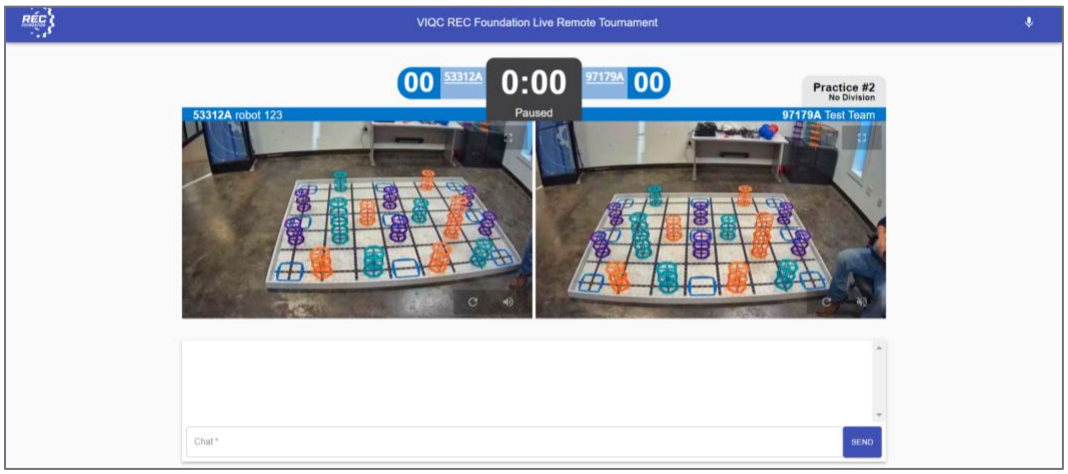
Step 2: The Ready Check

When the Tournament Operator asks for a "Ready Check", click on the "Ready" button to show that the team is ready for the match. Teams should not click the "Ready" button until they are ready to run the match. Teams should contact the Tournament Operator via the match chat if there is an issue preventing them from competing.



Step 3: Match Start / Playing the Match

Once the match has started, teams play their 1-minute match. There will be a 5 second countdown and audio prompt, and the Tournament Operator or Emcee for the event may do a countdown as well. The match then starts, and teams play for 1 minute as normal. At the end of 1 minute, teams should place their controllers down. Elements that are scored after the audio prompt and countdown for the end of the march will not be scored.



This is a view of a match.

Step 4: Scoring the Match

Once the match is completed, the head referee will begin to count out the scored objects in each position. Please follow along and verify what the head referee is counting is accurate. You may be asked to move your robot out of the way if it is blocking the view of a potentially scored object.

If there is a discrepancy in what objects have been counted, it must be raised with the head referee using the event chat feature.

Step 5: Finalizing the Score

Once all objects are scored and the score announced, and any discrepancies resolved, the Tournament Operator will select “Finalize Score” which will then send the team back to the event lobby space with the other teams waiting for their upcoming matches.

Step 6: Repeat for Additional Matches

Repeat the previous steps for each Practice and Qualification Match until all of your team’s matches are complete.

Step 7: Finals Matches and Alliance Selection

Once the last Qualification Match is complete, the Tournament Operator will automatically create the Finals Matches by pairing each team with their partner for Finals Matches. These matches can be found on the left-hand side of the screen once the Tournament Operator completes the set up and verifies all teams included in finals.

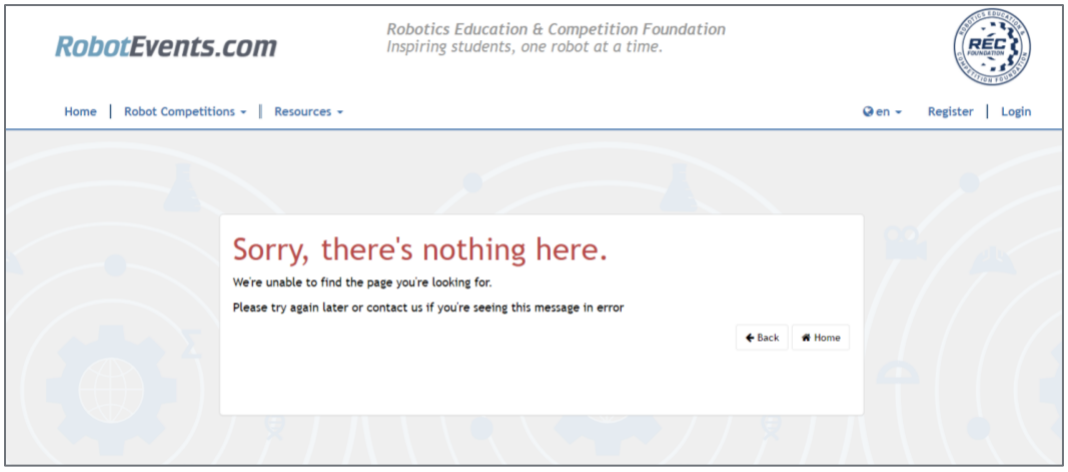
Teams will likely be given a few minutes to strategize with their partner before Finals Matches begin.

Step 8: Finals Matches

Continue onto the Finals Matches and play them using the same procedures as Qualification Matches.

Step 9: End of Event

Once all the Finals Matches are completed and scores are finalized, the event will end. When the Tournament Operator ends the event, the team will be sent back to RobotEvents.com.



This is what teams currently see after an event has been ended and finalized.

Congratulations! You have completed a Live Remote Tournament!

Section 5: Troubleshooting

Installing Google Chrome

1. Download and install Google Chrome.
2. Use Google Chrome browser to log into RobotEvents.com.

Clearing Google Chrome Cache and Cookies

1. On Google Chrome, on the top bar (where you type in the web address), click on the three dots on the right-hand side of the screen.
2. Click on “Settings”
3. Scroll down to “Clear Browsing Data”
4. Make the range at least 24 hours and ensure all options are checked off
5. Then select “Clear Data”
6. Close Google Chrome and Reopen before going back to Remote.RobotEvents.com

Problem: Teams’ own video not working

Symptoms: The team sees one of the following instead of their own video feed:

1. A Black Screen
    a. **Solution:** Have the team go through the Audio and Video Selection tool again by refreshing the page. If the team can see the webcam video feed properly have them finish the setup process. If they see a black screen on the preview have them verify that Chrome is given access to the webcam in Chrome’s settings. If this is enabled have them go to https://webcamtests.com/ to make sure their webcam is working properly.
2. A Webcam Driver Error
    a. **Solution**: Either change the webcam or remove the camera as a device and then re-add it to download the drivers again. This error is indicative that your webcam driver has stopped working properly.

Problem: Team is not able to select the “my field is ready” button on setup

Symptoms: The “My Field is Ready” button is greyed out after they have selected ‘audio” and “video” sources, and have completed the controller pairing process correctly (if applicable)

Solution: Have them deselect an audio source to “none” or a different audio source by refreshing the page.

Problem: Team cannot see another team’s video

Possible Symptoms: Team is able to see their own video but can see one of the following

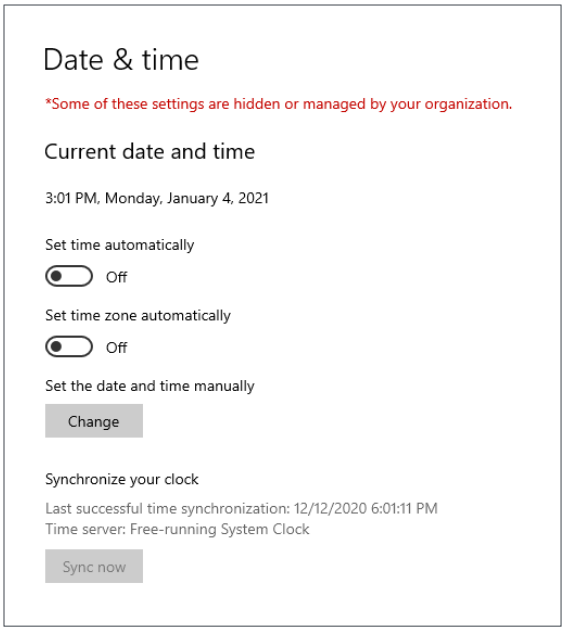
1. See black screens for all of the other teams
    a. **Solution:** Have them wait 8 seconds since the last refresh of the page, have them refresh the entire page. If the team is using Wi-Fi, recommend for them to get a hardwired connection. Verify that the team is connected to the LRT System as well.

2. See black screens for some of the other teams
    a. **Solution:** Have them wait 8 seconds from the last refresh if not refresh the page. This might be an issue with the other team having a poor connection that is struggling to connect. It could also be a video processing problem where the computer cannot keep up with rendering all the video feeds
3. Team sees video feed, but it is highly pixelated
    a. **Solution:** This might be an internet connection issue, verify that they have a wired connection, or their computer might be struggling to process the video.

Problem: Timer Synchronization

If a team's timer is not synchronized with the rest of the teams or EP.

Solution: The team has to select the computer's time/clock settings and make sure that their clock is synchronized (see below screenshot), if not they have to hit the "sync now" button.



Problem: Team cannot hear event audio

Solution: Have the team verify that their audio settings on their computer is set up properly (have the correct output device and that it is not muted).