

VEX U Robotics Competition

# Live Remote Tournaments (LRT)

Team Setup & Instructions

## Table of Contents

<b>Introduction to Live Remote Tournament (LRT) Gameplay.....</b>	<b>3</b>
<b>LRT Coach/Mentor Team Facilitator Policy .....</b>	<b>3</b>
<b>Engaging Your Team &amp; Social Distancing .....</b>	<b>5</b>
<b>Document Overview .....</b>	<b>6</b>
<b>Section 1: Technology &amp; Equipment Requirements.....</b>	<b>6</b>
Technology & Equipment Requirements .....	6
Best Practices .....	7
<b>Section 2: Field &amp; Technology Setup .....</b>	<b>7</b>
VEX U Field & Camera Setup.....	7
VEX U Camera & Technology Setup.....	9
Example Technology & Field Layout .....	10
Pre-Event Camera & Video Set-Up / Solo Practice Mode.....	11
Team Communications .....	12
<b>Section 3: Connecting to Event Procedure.....</b>	<b>14</b>
Step 1: Registering for the Event.....	14
Step 2: Logging into the LRT System .....	14
Step 3: Setting up Audio & Video Inputs and Robot Controllers .....	15
Step 4: Joining the Practice Lobby .....	16
Step 5: Robot Inspection.....	17
Step 6: Joining the Live Remote Tournament .....	19
<b>Section 4: In-Event Procedures .....</b>	<b>21</b>
Step 1: Joining a Match .....	21
Step 2: The Ready Check.....	22
Step 3: Match Start/Autonomous Period .....	23
Step 4: Driver Controlled Period .....	23
Step 5: Scoring the Match.....	23
Step 6: Finalizing the Score .....	24
Step 7: Repeat for Additional Matches .....	24
Step 8: Elimination Matches .....	24
Step 9: End of Event .....	25
<b>Section 5: Troubleshooting.....</b>	<b>25</b>

## **Introduction to Live Remote Tournament (LRT) Gameplay**

Live Remote Tournament (LRT) gameplay is an alternate format developed by the REC Foundation. 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 VEX U teams to compete in Live Remote Tournaments.

Previously, traditional VEX Robotics Competition events have been held “in-person” in a single location such as a school, gymnasium, community center, or a myriad of other public venues. By utilizing the RobotEvents.com Live Remote Tournament system, Teams can choose to attend events entirely remotely. This enables teams to compete within their region and beyond without the expenses of travel.

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 at in-person events, including proper field setup and reset, and ensuring teams are on the field 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, a VEX Robotics Competition is played by two Alliances – one “red” and one “blue” – each comprised of a single team. Each Team competes on a separate field (i.e., there are two Robots, two Teams, and two fields involved in each Match).

For the full game rules, please consult the current version of the VRC Game Manual-Appendix C, 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.

General information for Team Advisors is found in the Team Guide. Additional resources for Teams are available at RoboticsEducation.org or by contacting your Team Engagement Manager.

## **LRT Coach/Mentor Team Facilitator Policy**

The REC Foundation provides several 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 section 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. The Facilitator can be the Coach, the Primary Contact, an adult Mentor, or adult team member.
- Provide their full name at the start of the event to the Event Partner.
- 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](#) and [Appendix C](#).
- Read all REC Foundation documentation and understand the requirements for teams participating in Live Remote Tournaments, including the [LRT Team Instructions](#) and the [LRT Field & Technology Inspection Checklist](#).

The Facilitator must:

- Review all aspects of the event on RobotEvents.com prior to registering 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 Field & Technology 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 [VEX U Robot 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 correctly set up with all game elements correctly placed.
  - Confirm that the robot placement is as per the Game Manual.
  - Confirm that the field layout including the [LRT Field & Technology Inspection Checklist](#) has been completed and the team remains in compliance for the duration of the event.
  - Confirm that the camera is operational and captures the full field correctly aligned with appropriate lighting.
  - Confirm working audio capability with the event.

- ❑ **Scoring:** 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 meet any of these requirements may result in a negative experience for your team and other event participants. In some instances this 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.

## Engaging Your Team & Social Distancing

One of the goals of Live Remote Tournament gameplay is to give teams opportunities to play in exciting cooperative matches while being able to maintain physical isolation from one another. Every LRT event will be automatically live streamed via a YouTube link found on the event's information page on RobotEvents.com. Sharing that link will allow spectators to follow along with the event with a slight delay from the live event. **Teams should only use the LRT system for video and audio in their match, and NOT the delayed livestream.**

Teams will be participating from public venues such as gymnasiums, but also classrooms, homes, garages, libraries, and many other non-traditional event locations. Teams should test their camera setup early and be aware of what is visible in their backgrounds. Many teams may choose to include banners, team signs, or other appropriate decorations around their event space. Teams are encouraged to have fun and show their team spirit!

Please be mindful of any health and safety regulations in your area. The health and safety of all participants should be top priority for every team.

## 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 & Technology 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**

Please [click here](#) for the LRT Troubleshooting Guide.

## 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. Please refer to the [LRT Field and Technology Inspection Checklist](#).

### Technology & Equipment Requirements

- Active and paid team registration on RobotEvents.com
- Full competition field and game elements (VEX U)
- Internet access
  - It is recommended teams used a **wired ethernet connection** whenever possible.
- Computer solely dedicated to using the Live Remote Tournament platform on RobotEvents.com by a single team.
  - Up to date version of [Chrome web browser installed with “Experimental Web Platform Features” Enabled](#)
- 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
- 2 V5 Robots with [the most up-to-date firmware](#).
- 2 Micro USB to USB cables to connect robot controllers to computer
  - Teams may wish to use a long (10-12 foot) cord for more flexibility in computer and camera placement

- An additional monitor or TV screen/projector for viewing alliance partner and opponent fields 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>.

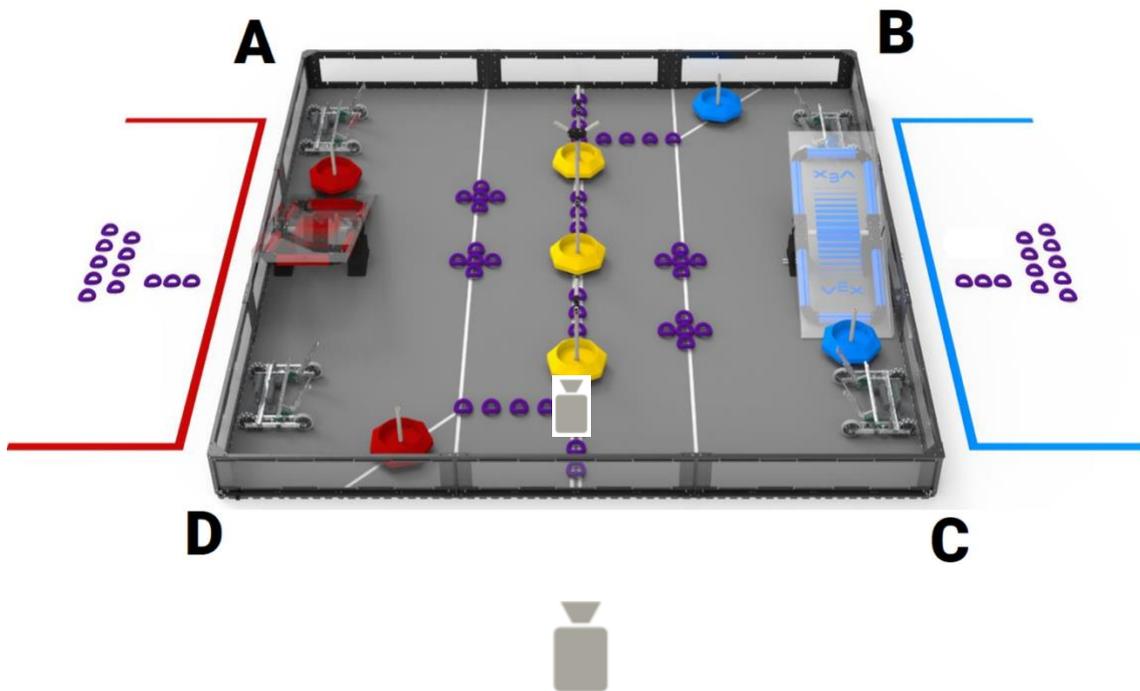
## Best Practices

To ensure the quality of each LRT event, we currently recommend teams adhere to the following guidelines when logging in at [remote.robotevents.com](https://remote.robotevents.com) and participating in a Live Remote Tournament.

- Open a new 'Incognito Window' when logging in at [remote.robotevents.com](https://remote.robotevents.com)
- Teams should not have any additional programs or services running on their laptop, especially alternative video chatting services (i.e: Skype, Discord, Google Meets).
- Teams should be aware of the lighting in the room they plan to participate from. Poor field lighting can hinder event volunteers in remote scoring fields.

## Section 2: Field & Technology Setup

### VEX U Field & Camera Setup



*This view shows the general area and orientation of a team's camera for an LRT. Notice that the red alliance starts on the left side of the camera shot, and the blue alliance starts on the right side of the camera shot.*

- ❑ Team’s camera must be placed on the “audience side” of the field, i.e. the Red Alliance Station on the left side of the screen & the Blue Alliance Station on the right of the remote webcam feed. As per rule <LRT1> & <RSE7> in the LRT [Game Manual](#).
- ❑ The Drivers, Robots, Controllers, and **complete & unobstructed competition field, including the field perimeter** must remain on camera at all times during the match. As per rules <LRT1> & <RSE7> in the LRT [Game Manual](#).
  - A starting recommendation is to place your web camera 7 feet back from the field and 7 feet above the level of the field, but the exact camera placement is dependent on your camera and setup.
- ❑ Game Elements should be properly set up as shown in the above image. Game elements are always set up the same way no matter what color alliance the team is assigned to in a match.
- ❑ 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.

Field Inspection will take place in accordance with the LRT Game Manual and specifically <LRT5>:

<LRT5> In a Live Remote Tournament Match, Teams must set up their own field in accordance with the layouts, tolerances, and specifications found in the [Game Manual](#) and [Appendix A](#).

- a. Prior to a Match, a Head Referee will verify each Team’s field layout and request any adjustments as needed. A Team will not be permitted to play in a Match until the Head Referee has approved their field layout; refusal to comply with any requested adjustments may be considered a violation of at the Head Referee’s discretion.
- b. Teams are permitted to construct their own field perimeters, in accordance with the Non-Standard Field Perimeter Guidelines found in Appendix A.
  - i. If using an unofficial field perimeter, Teams may be asked to verify their compliance with these guidelines as a part of the inspection process.
  - ii. Official VEX U foam tiles (VEX Robotics SKU 278-1502 or 276-7175) must be used.
  - iii. The official VEX U Tipping Point Full Field & Game Elements Kit (VEX Robotics SKU 276-7048) must be used.
- c. Teams must still utilize their three (3) Preload Rings as specified in rule
  - i. The nine (9) Rings that would be used as Preloads by the other Teams in the Match are not placed on the field.
- d. Teams may utilize eighteen (18) Match Load Rings, within the guidelines set forth by .
  - i. All Match Load Rings begin the Match in the Alliance Station associated with the Team’s color for that Match. Match Load Rings may not be introduced from the opponent’s Alliance Station

## VEX U Camera & Technology Setup

### Computer/Technology Requirements:

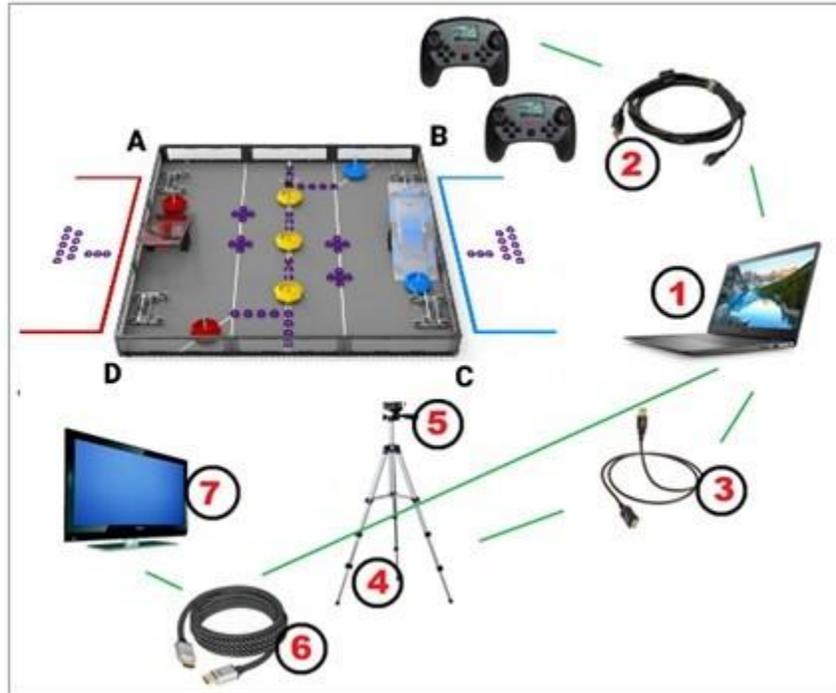
- A computer (LRT Computer) with Google Chrome installed with “Experimental Web Platform Features” enabled.  
**Note:** This computer must be solely dedicated to using the Live Remote Tournament platform on RobotEvents.com and cannot run other video streamlining tools or apps (e.g., Discord, Zoom, etc.) during the event as it can prevent video from appearing correctly.
- Robot controllers connected to LRT Computer via micro-USB 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.  
**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.
- 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 Additional Equipment:

- 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 and referee/announcer instructions 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:

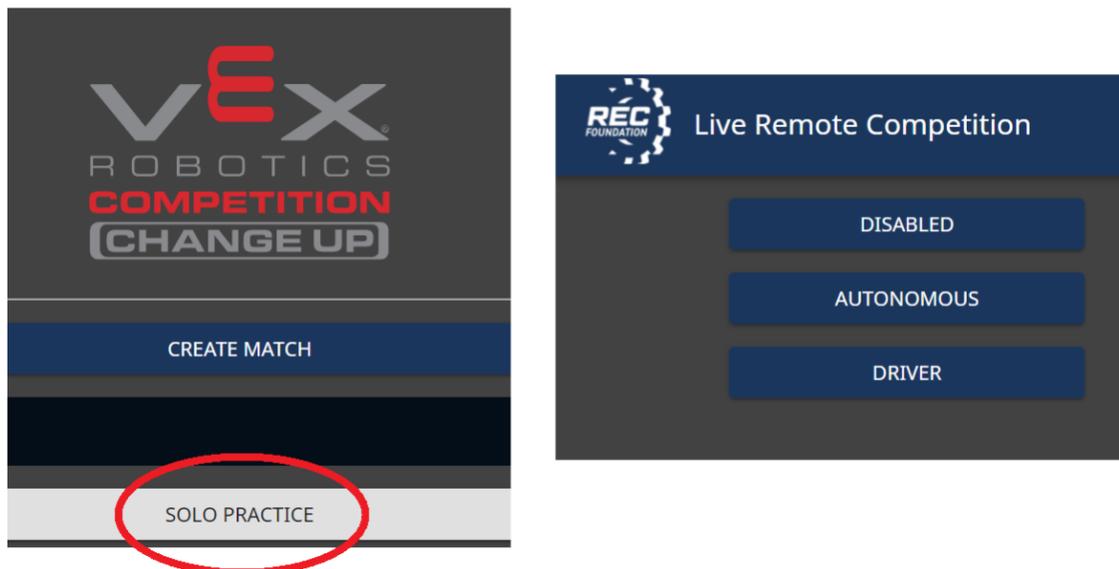
1. Laptop or computer
2. (2) MicroUSB cables for connecting (2) V5 controllers to computer
3. USB extension cable to connect computer to camera. (This may not be needed depending on your setup/equipment)
4. Camera tripod or stand
5. USB web camera
6. Video cable to connect to a large display
7. Large display for viewing the match from the driver's position

## Pre-Event Camera & Video Set-Up / Solo Practice Mode

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.

It is highly recommended that teams utilize the solo practice system on [remote.robotevents.com](https://remote.robotevents.com) to test their robot's controllers connectivity, autonomous function, and camera setup. Solo practice allows a team to test Driver and Autonomous modes as well as view their webcam. Remember that often what a webcam will see in terms of visibility and brightness may not match what your eyes see, so use the webcam view in Solo Practice to adjust lighting or viewing angles as needed.

**Note:** Your camera view will appear in a real LRT exactly as it does in solo practice mode. Additionally, the autonomous and driver buttons in solo practice mode function the same in a real LRT. If your team is having issues running an autonomous program in solo practice mode, the autonomous program will likely not work in a real LRT. As such, teams should use this mode to ensure their robot is fully functional within the LRT platform BEFORE attending their event.



*These screenshots include the button for the “Solo Practice” feature in the remote practice system, as well as the panel for testing different robot modes. Your webcam feed will also be shown on screen to assist you in checking your camera settings.*

If you are not able to view your webcam or get your computer to work in solo practice mode on [remote.roboevents.com](https://remote.roboevents.com) please contact [centralsupport@roboticseducation.org](mailto:centralsupport@roboticseducation.org) or contact your Team Engagement Manager for assistance.

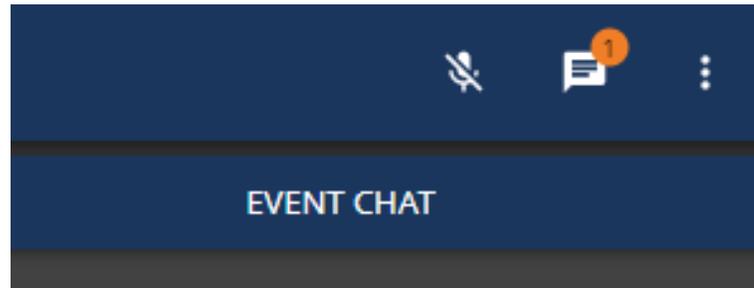
It is recommended that teams set up a large TV/monitor, if available, to be able to duplicate their monitors to be able to view other teams' fields better. Teams may also consider using an external set of speakers pointed at the driver's station so teams can clearly hear the audio stream.

## Team Communications

There are three primary modes of communicating with other teams and with event partners during the event.

- **Event Chat:** The event chat is accessed from the LRT Main Lobby, and can be used by any team, volunteer, or event staff. Everybody involved in the event can view and type in the event chat. This chat should be primarily used for event announcements and updates. This chat should not be used for 1 on 1 conversations.
- **Private Chat:** The private chat is accessed by clicking the 'message icon' in the top-right hand corner of the screen. An orange dot indicator will appear next to the icon to indicate the team has an unread message. Teams can start new private chats with anyone that is currently logged into the event, including other teams, volunteers, and event staff. Private chats are 1 on 1 conversations, and information shared within a private chat is not viewable by any other user, including the Event Partner. Teams should use the private chat feature to strategize with other teams or communicate information with the Event Partner that is not relevant to other teams.
- **Match Chat/Microphone:** When a team joins a particular match, there will be a match chat viewable beneath the video feeds. Only volunteers, the event partner, and the teams in the current match can view and type in this chat. This chat should be used to communicate details pertaining to the current match. The head referee or scorekeeper may use this chat to ask teams questions about scoring or assist teams with technical difficulties. Additionally, teams can click the 'microphone icon' in the top right-hand corner of the screen to unmute themselves and communicate directly with the event partner.  
**Note:** The Event Partner may choose to have teams muted for the duration of matches. In this case, the Match Chat would be the only form of communication between teams and volunteers in a match.

Teams should always have someone monitoring their chat windows in case they are asked a question by event staff or another team, or if event staff post information into the Event Chat.



This is a detail of the private chat icon in the upper right corner of the LRT interface. Clicking on the icon will bring up a list of teams and volunteers in the Tournament to send a private message. The orange icon indicates that you have an unread private message. To the left of the private chat icon is the Microphone Icon. This button toggles your microphone between muted and unmuted. 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 of the team Facilitator, the coach, or other responsible adult who will be supervising Students during 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

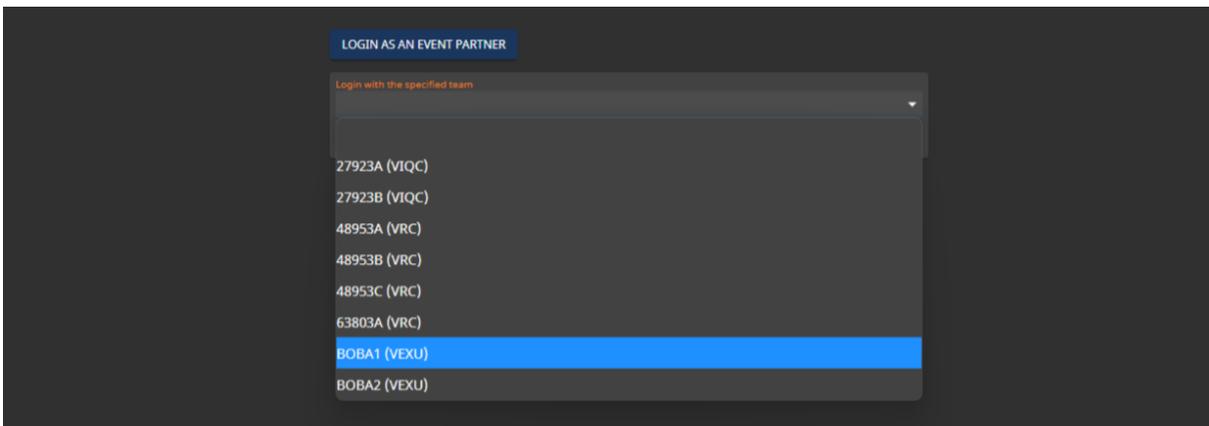
### Step 1: Registering for the Event

Teams need to be registered for the correct Live Remote Tournament on RobotEvents.com. To find events, visit [www.robotevents.com](http://www.robotevents.com) and search by program and event type “Live Remote Tournament.” Teams can attend LRT events outside of their geographic region, however some events may be restricted to only teams from that region. The event’s information page should state if any such restrictions are in place.

### Step 2: Logging into the LRT System

On the day of the event, the **Primary or Secondary Contact** on RobotEvents.com for 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.

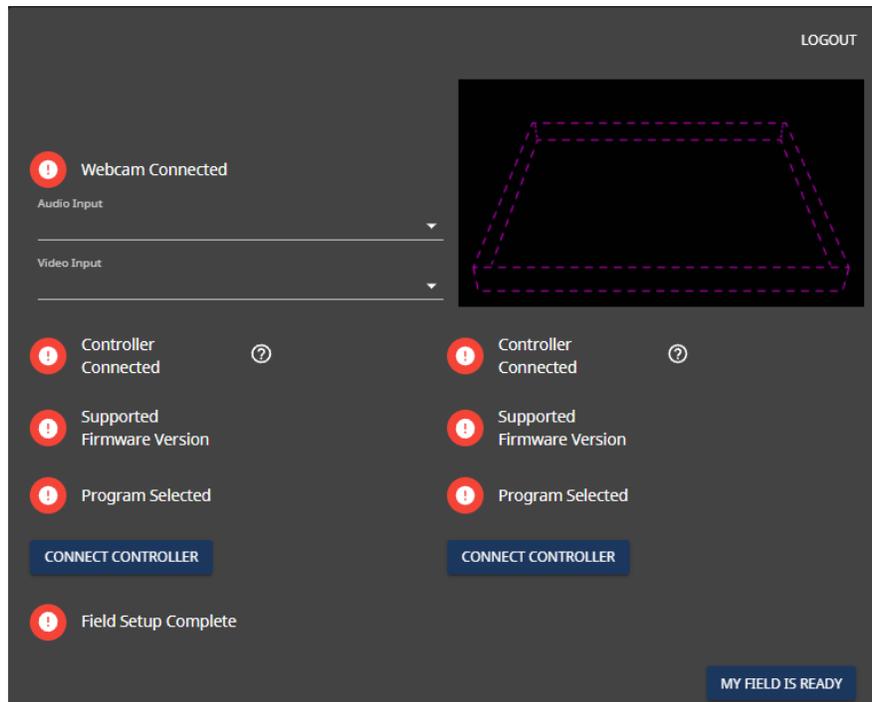
Once logged in, the coach should go to [remote.robotevents.com](http://remote.robotevents.com) and select the desired team registered for the event from the dropdown menu. If you have selected the incorrect team, click on the gear icon on the top right-hand side of the screen and select “Change Teams.”



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

### Step 3: Setting up Audio & Video Inputs and Robot Controllers

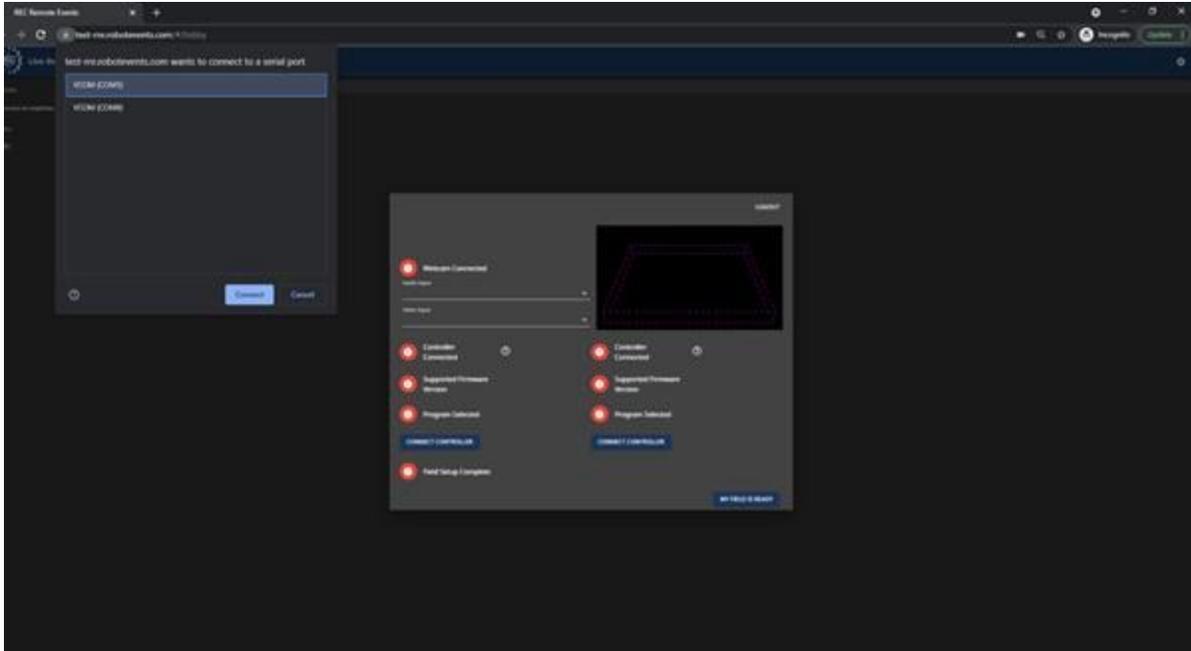
Once the team logs into [remote.RobotEvents.com](https://remote.RobotEvents.com), the team will be asked to connect their webcam (and be prompted to make sure their field fits in the purple outline), select their audio input, and connect their controllers via micro-USB cable. The teams will be asked to select their Autonomous Program via their V5 controllers to be able to connect the controllers to the system. This setup window will also tell the user whether they are using a V5 robot brain with a supported firmware version.



*The LRT setup window is shown above. You must select these settings each time you log in to [remote.robotevents.com](https://remote.robotevents.com).*

#### Order of Operations for Connecting Controllers:

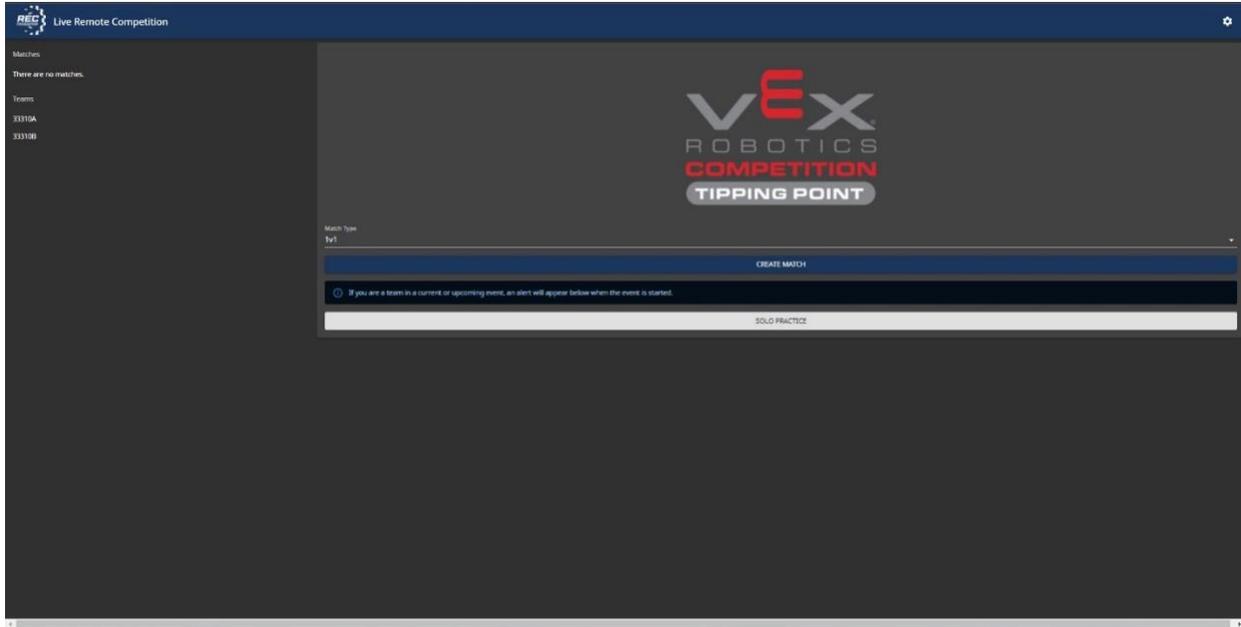
1. Go to [remote.robotevents.com](https://remote.robotevents.com) and log in as the team that is competing.
2. Power on the V5 Brain and Controller for each robot.
3. Ensure each V5 controller is paired to its respective robot via the V5 Robot Radio.
4. Select the program you wish to use on the V5 Controller and select 'Run' on the controller.
5. Connect each V5 controller to the computer using two micro-USB cables.
6. Select 'Connect Controller' in the LRT platform for the first controller.
7. Google Chrome may require you to select the VCOM# from a list to connect your controller to a serial port as show in the image below. Simply select the controller and click 'Connect.'
8. Repeat steps 6 and 7 for the second robot.
9. Once both controllers are paired, and your audio and video settings are configured, click 'My Field Is Ready' to continue.



*View of the controller connection process. A Google Chrome popup may appear asking the user to select a controller to connect to a serial port. To continue, select the controller from the list and click 'Connect.'*

#### **Step 4: Joining the Practice Lobby**

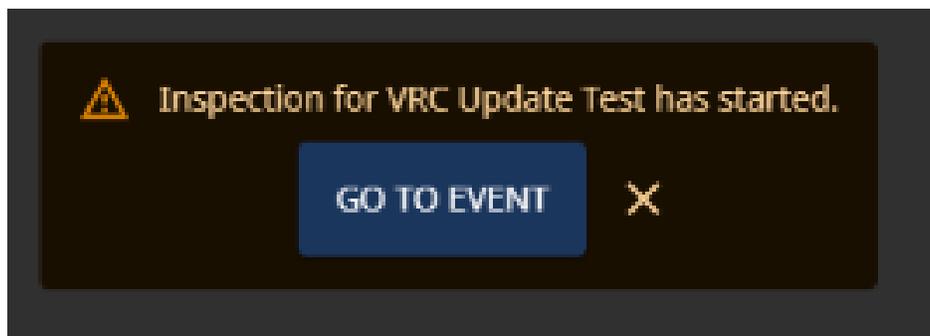
Once you click 'My Field is Ready' in the setup window, you will be taken to the practice lobby. In the practice lobby, you can access the solo practice mode, and create practice matches. Solo practice mode allows teams to test the functionality of their autonomous routines within the LRT platform, and verify their camera is working properly. Practice matches can also be created, and other teams who are currently in the practice lobby will have the option to join the match.



The image above shows the LRT Practice Lobby. The list on the left-hand side of the screen shows teams that are currently in the practice lobby, as well as the practice matches which are currently active. In the middle of the screen are options to create a practice match or enter the solo practice area.

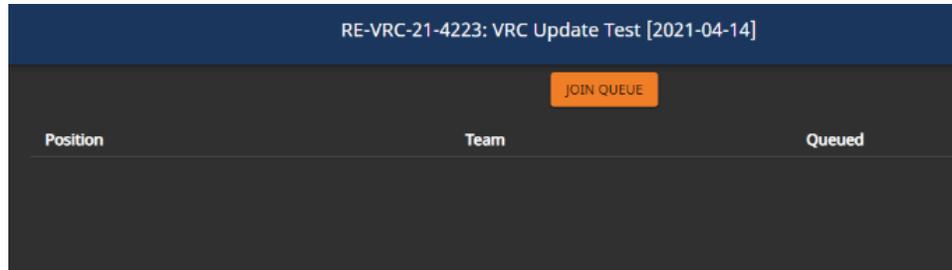
## Step 5: Robot Inspection

Event Partners will schedule a period and format for Robot Inspection. This section will discuss the LRT system's inspection portal. Once an Event Partner starts inspection, teams will receive a notification as shown below. The notification will appear for teams in the bottom of the Practice lobby.

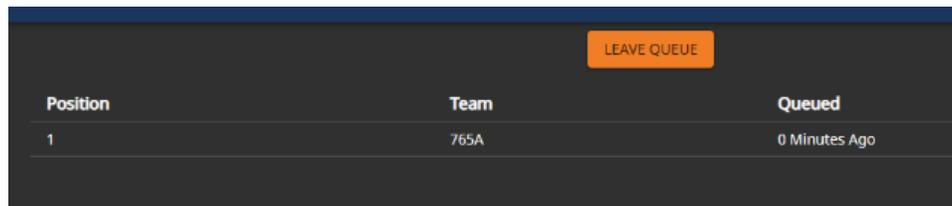


This button will bring teams into the event's inspection lobby.

Once in the inspection lobby, the team can join the queue for inspection. The inspection queue will appear on the screen, and teams can see what place they are in the queue. If the team realizes they are not ready for inspection, they can remove themselves from the queue, and re-join at the end of the queue when they are ready.

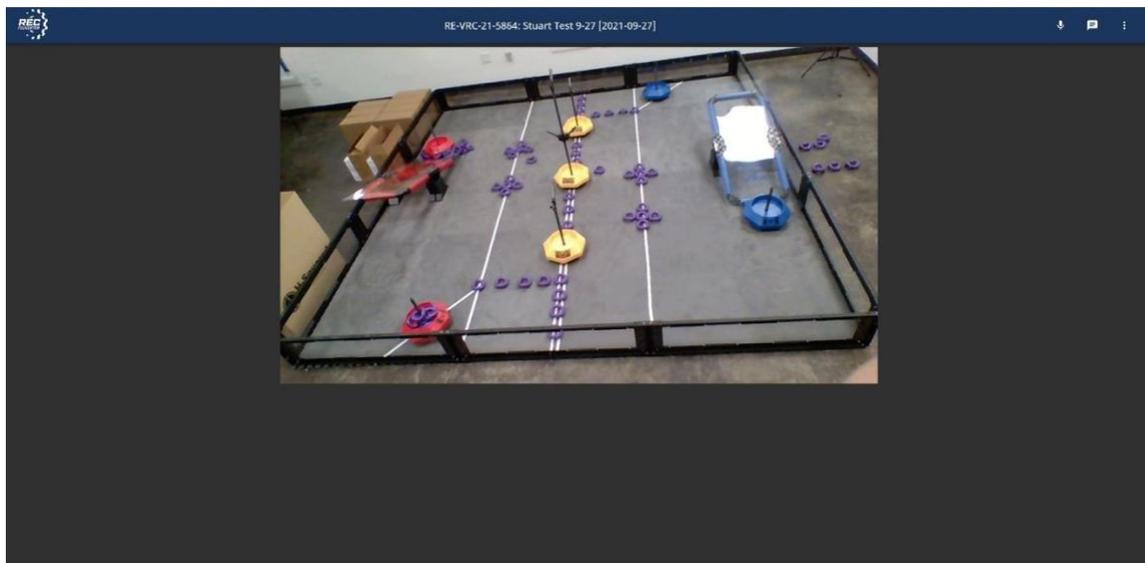


*The “Join Queue” Button will add the team to the list of teams ready to be inspected. Once it is their turn, event staff will go through the inspection checklist with teams.*



*This is the view once in the Inspection Queue – teams can leave the queue if they realize they are not ready to be inspected.*

When the event partner is ready to inspect your team, you will be automatically brought into the inspection room. There, the team will complete the inspection process just as they would at an in-person event.

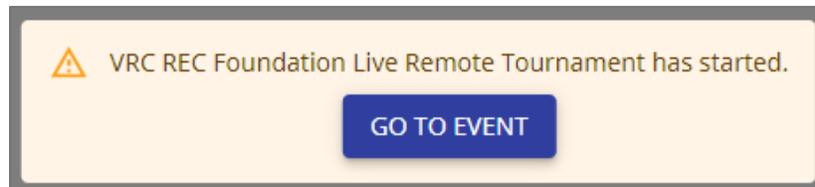


*The image above shows the team view of the inspection lobby. The team can see their own field, and have access to the microphone, and chat icons.*

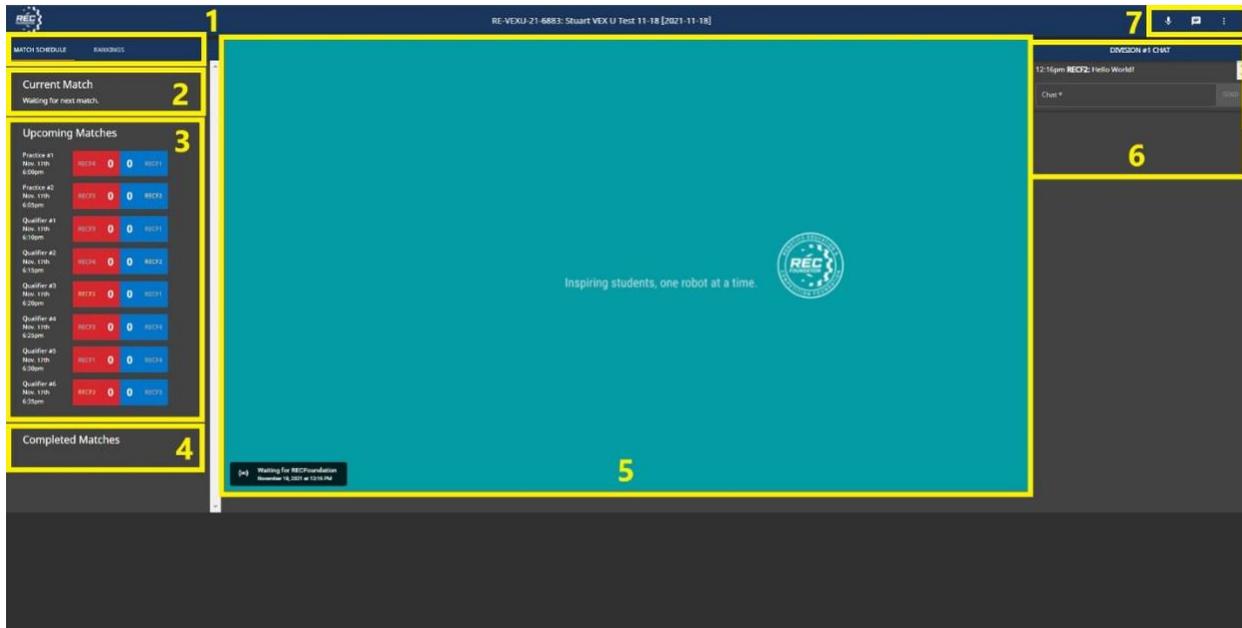
- **Note:** Team's might have to unmute themselves to communicate with volunteers during the inspection process.
- **Note:** Use the private chat to communicate with volunteers or event partners if your team is having technical issues during the inspection process.
- **Note:** Once the team has completed their inspection, they will be automatically removed from the inspection lobby, and returned to the LRT practice lobby. Keep in mind that the Tournament Operator cannot start the event until all inspections are complete. As such, teams might have to wait in the practice lobby until the remainder of inspections are complete before they are given the prompt to join the tournament.

## Step 6: Joining the Live Remote Tournament

If the team signs in at [remote.robotevents.com](https://remote.robotevents.com) **before** the Tournament Operator has started the event, the team will be sent to the practice match lobby. This is a great opportunity to test your camera setup and practice driving with other teams logged into the practice system. **Once the Tournament Operator has started the event**, the team will see a pop up on the bottom of their screen in the LRT practice lobby that will allow them to join the event by selecting "Go to Event." Once a team joins the event, they will be automatically brought into the LRT Main Lobby. In the Main Lobby, teams can view the match list on the left-hand side of the screen. Teams can communicate with the other teams and event staff via both the public Event Chat on the right-hand side of the screen and private chat by clicking on the icon in the upper right-hand side and selecting who they wish to chat with. 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 pop-up will appear on the bottom of a team's screen when they are logged in to the LRT Practice Lobby at [remote.robotevents.com](https://remote.robotevents.com).*



*This is a view of the LRT Main Lobby screen, with the match list on the left and event chat on the right. A team’s number will be highlighted in yellow for their upcoming matches.*

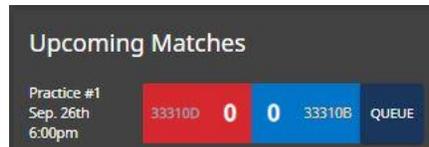
*Each of the numbered items in the image above are described below:*

1. **Match Schedule and Rankings tabs:** Clicking between these two tabs allow the team to look at the match schedule and the current rankings. The rankings will automatically update after each qualification match.
2. **Current Match:** This section shows the match that is currently being played.
3. **Upcoming Matches:** This section shows the remaining matches to be played. Teams can click the ‘Queue’ button next to their upcoming match to actively queue for that match. Clicking that button will bring the team into the Match Lobby for that match.
  - a. If a team does not actively queue for their upcoming match, the EP can automatically bring the team into their match.
4. **Completed Matches:** This section shows matches whose scores have been finalized.
5. **Livestream:** In the center of the screen is the livestream. All Live Remote Tournaments are livestreamed on the REC Foundation’s YouTube channel. The generated livestream is unlisted, meaning it will not show up on YouTube search results. However, any person with the link to the livestream can watch the event live. The link can be found by teams by clicking the YouTube icon in the bottom right corner of the stream.
6. **Event Chat:** Teams and volunteers can post in the event chat. Posts in the event chat will appear for all users in the tournament.
7. **Communication Options:** In the top right corner of the Main Lobby are the communications icons. From left to right, the icons are Mute/Unmute, Private Chat, and Settings. Mute/Unmute will control the team’s microphone. **Note:** When a user is in the main lobby, no one can hear their audio. Private chat allows the user to communicate privately with other teams or volunteers. The settings allow toggle between light and dark mode and allow the user to log out.

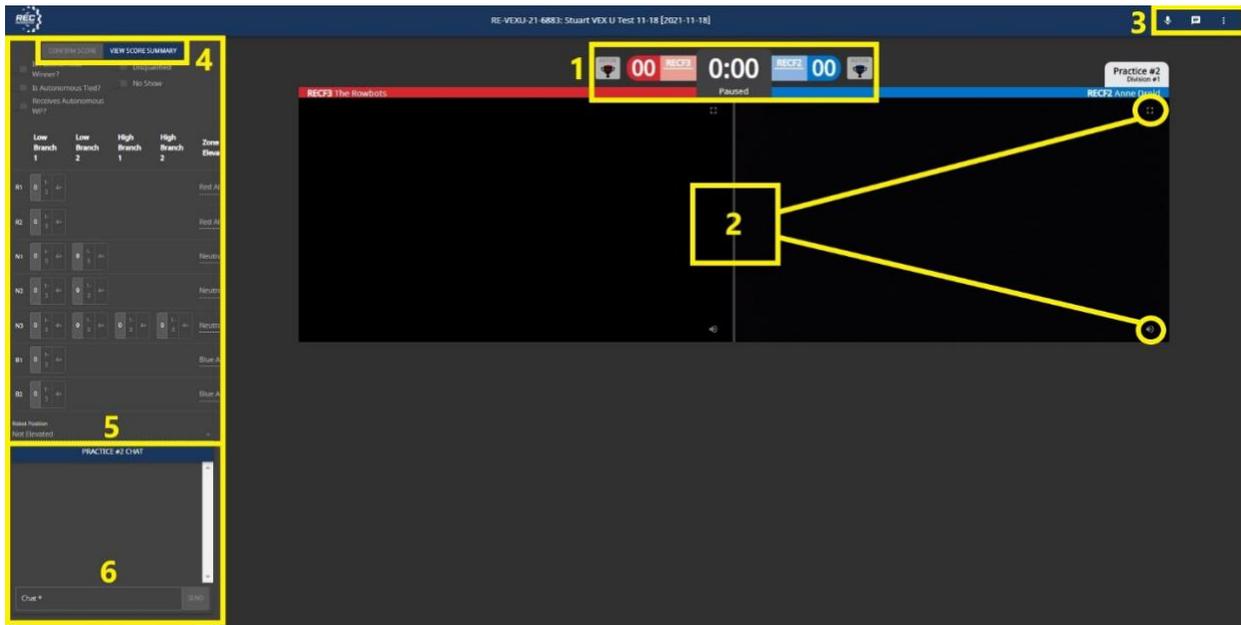
## Section 4: In-Event Procedures

### Step 1: Joining a Match

Teams will be automatically brought into the current match when the Tournament Operator starts each match. Teams can also queue for their next match ahead of time by clicking the 'Queue' button next to their upcoming match. It is recommended that team's queue for their upcoming matches ahead of time, so that the team has time to diagnose any technical issues if they arise.



*The team's participating in practice match 1 can queue for their match ahead of time by clicking the 'Queue' button located next to their match in the match list.*



*The team view of the LRT Match Lobby.*

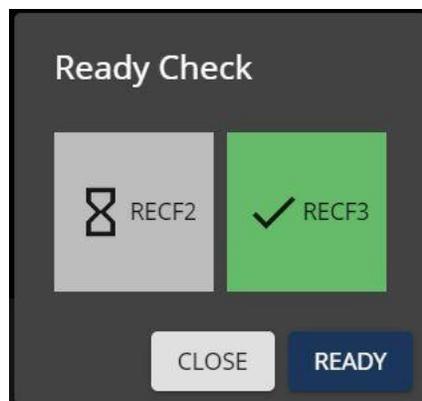
The numbered items are described below:

1. **The Match Timer, Current Score, and Autonomous Scoring Indicators** – The color of the 'Auton' box next to the score indicates the autonomous winner. If both 'Auton' squares are colored at the end of the Autonomous period, this indicates an Autonomous bonus tie. A gold star in the 'Auton' box indicates that the team has received the Autonomous Win Point.
2. **Current Videos of Teams in the Match** – Each team has independent full screen and mute buttons.
3. **Communication Options** – These options appear the same when actively in a match as they do in the Main Lobby view.

4. **Confirm Score Button** – At the end of the match, teams will have an opportunity to confirm the scoring of their field. Teams can use the match chat to communicate discrepancies in scoring to the head referee and scorekeepers. Once the score is correct, teams should press this button to show they agree with the score.
5. **Team Current Score** – This section on the left side of the screen is not editable by teams. This section shows what the scorekeepers currently have scored for the team's field.
6. **The Match Chat** – This chat is only visible for teams in the specific match and volunteers.

## 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. This is analogous to giving the referee a thumbs up at an in-person event to show they are ready to start their match. Teams should check that their robot, field, and video connections are ready **before** confirming the Ready Check. Teams should contact the Tournament Operator via the match chat if there is an issue preventing them from competing. **Note:** Teams should not click the ready check button until they are ready to start the match. The Tournament Operator will start the match once all ready checks have been completed.



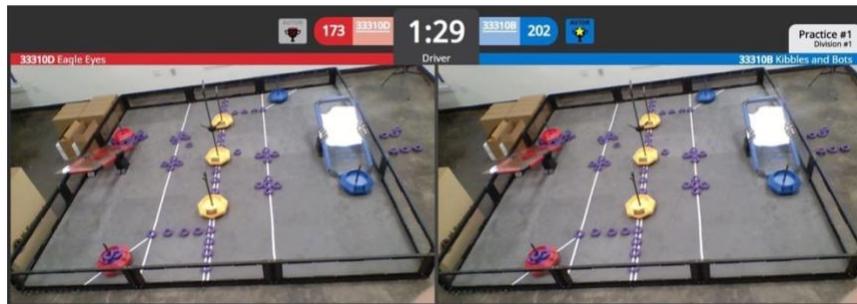
*This popup will appear when the Tournament Operator sends teams a Ready Check. Currently one team has selected ready, and the other team is not ready to start the match.*

### Step 3: Match Start/Autonomous Period

Once the match is started, there will be a 5 second countdown on the match timer along with an audio prompt. All teams will run their autonomous programs simultaneously. Once the timer reaches zero, the autonomous period will stop, and robots will automatically cease movement. The autonomous period will then be scored to check for not only the assignment of an Autonomous Bonus, but also the extra Win Point for each alliance.

### Step 4: Driver Controlled Period

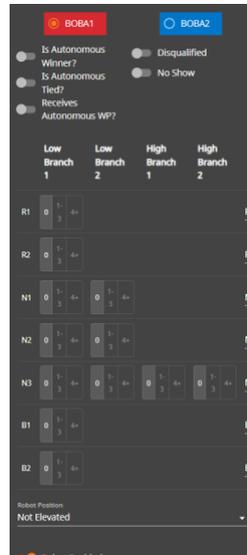
Once the Autonomous period has been scored, there will be another 5 second countdown on the match timer followed by the 1:15 driver-controlled portion of the match. At its conclusion, robots should cease operation automatically.



*This is a view of a match.*

### Step 5: Scoring the Match

- Once the match is completed, the scorekeeping referees will record the scored objects in each position. You may be asked to move your robot out of the way if it is blocking the view of a potentially scored object or verify a scored object in the match chat.
- On the left-hand side of the screen, you will see a scoring interface that will mirror the scoring interface used by the scorekeepers of the event. Once the score is settled by the volunteers, you will have an opportunity to “Confirm Score” – this affirms that the placement of scoring objects on your field matches what the scorekeepers have determined. Any discrepancies should **be immediately brought up in the match chat** so it can be investigated by event staff. This helps both teams and event staff clearly communicate scoring issues.
- A team’s confirmation is final and cannot be undone. The button will turn grey once clicked. Remember that this feature only confirms the objects on your field and not how those objects interact with your partner’s field. Teams do not need to confirm a score for an event to proceed. The match can still be ended and finalized without confirmation.



*The above image shows a team's game object placement. The "Confirm Score" button above the field diagram is in grey, indicating that this team has either already confirmed their score with event staff or the match is still being scored by referees.*

## Step 6: Finalizing the Score

Once all objects are scored and the score is announced the Tournament Operator will select "Finalize Score" which will then send the team back to the event lobby space. Teams should then reset their field in preparation for their next match.

## Step 7: Repeat for Additional Matches

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

## Step 8: Elimination Matches

- Once the last Qualification Match is completed, the Tournament Operator will generate Elimination Matches. Since teams play in 1v1 matches in the Live Remote Tournament format, alliances will be automatically generated based on the rankings from qualification matches.
- **Note:** Once the Tournament Operator generates elimination matches and alliances, the rankings cannot be changed. Any scoring discrepancies must be brought to the event staff **before** the elimination matches are generated.
- **Note:** If your team has qualified to compete in the elimination matches but cannot for some reason, you should communicate with the Event Partner. The Event Partner can remove teams from participating in elimination matches if they cannot compete for whatever reason.

- Elimination 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. LRT elimination matches will follow the bracket system outlined in the game manual.
- Teams will likely be given a few minutes to strategize with their partner before Finals Matches begin.

## **Step 9: End of Event**

Once all the Elimination 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 the LRT practice area at [remote.robotevents.com](https://remote.robotevents.com).

**Congratulations! You have completed a Live Remote Tournament!**

## **Section 5: Troubleshooting**

[Click here](#) for the LRT Troubleshooting Guide.