Standard Operating Procedure (SOP)

Navigating Outreach: Setting Sail for Success

- Outreach -

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Definitions & Acronyms

- CAD -- Computer-Aided Design
- RR -- Roaring Riptide
- FRC -- FIRST Robotics Competition
- AT -- Assistive Technology
- Demo -- Robot Demonstration
- SOP -- Standard Operating Procedure

Purpose

This document provides guidance on how to represent your team effectively, engage with the community, and communicate your passion. By mastering these outreach skills, you will be able to help expand your team's impact while upholding the core values of empathy, gracious professionalism, and leadership.

Key Learning Objectives

After reviewing this SOP, you will be able to:

- Confidently engage with attendees and represent your team professionally.
- Adapt your communication style to different audiences.
- Demonstrate proper body language and networking skills.
- Handle common questions and challenges effectively.
- Connect to the robot, turn on the robot, and demo the robot for attendees.
- Analyze post-event responsibilities and reflect on the growth and glows of the event.

Procedure

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1. **Preparing for the Outreach Event**
    - **1.1. PRIOR TO THE EVENT!**
        - 1.1.1. Charge Robot Laptop, XRP Laptop, Robot Batteries, Surface Battery, Tablet
    - **1.2. Familiarize yourself with the event objectives** –- Clarify your team's goals and your role in achieving them.
        - 1.2.1. Before arriving at an outreach, **become familiar with what your team wants to accomplish**. Knowing the goal will center your conversations.
        - 1.2.2. **Understanding your role in the outreach** means knowing what is expected from you. To clearly address this, among team members, you should discuss how to divide up the information being presented.
    - **1.3. Know the audience** –- Research attendee demographics to tailor conversations effectively.
        - 1.3.1. **Familiarizing yourself with who the attendees are and their interests** will help guide the topics of your conversations.
    - **1.4. Dress appropriately** –- Follow team attire guidelines, considering venue and weather conditions.
2. **Connecting to the Robot *(2024 Crescendo Robot Specific)***

Do not Deploy or change Code! The code is already saved to the robot

- **2.1. Preparing the Robot**
    - 2.1.1. Take the Robot off of its cart.
        - 2.1.1.1. Two people should be on either side of the robot holding the metal on the chassis, NOT THE BUMPERS. Another person should be holding the cart, and when the two people lift the robot, the third person should be able to pull the cart out from the robot.
        - 2.1.1.2. When ready, the two people on either side of the robot should countdown to lift the robot off of the cart, and carefully place it on the ground in the desired position.
    - 2.1.2. Plug in the demo battery you brought to the event by sticking it in its slot on the back of the robot and lining up the positive

and negative sides on the Anderson connectors to each other (+ to +, - to -). Once plugged in, you'll need to turn the robot on at the main breaker. There should be a black box with a diagonal rod sticking to the side. Push the red diagonal switch (not the button) in to turn on the robot (You know it's in when you hear a click and the robot's lights turn on).
**follow this same step regardless of robot (2024 or 2025)*

2.2. Accessing the WiFi

2.2.1. **Checking the Cables:** Ensure that your ethernet cables are secured. Check that the cable going from the RoboRio (grey square that says RoboRio) to the Radio Power Module (black rectangle that says Radio Power Module) is pushed into their respective ports. Check that the cable going from the Radio Power Module to the VividHosting radio is pushed into both ports, and that the cable going to the radio says Rio.

2.2.2. **Connecting to the Robot's WiFi:**

2.2.2.1. **(2024 Robot)** - Power on the Blue Case Laptop. Password: 4118. Then, connect to the Robot WiFi: *2024 Ensembill*
Password: roaringriptide (case sensitive)

2.2.2.2. **(2025 Robot)** - Power on the Lenovo Laptop. Password: 8455. Open up the Wifi settings. Connect to the Robot's Wifi: *FRC-4118-Mr. Gill*
Password: Riptide4118
Note: If after 5-8 minutes you cannot see the wifi nor connect to the robot, see Section 2.3. If successfully connected, go to Section 2.4

2.3. Plugging Directly Into the Robot/Tethering

2.3.1. Locate the long blue USB to USB type B cable in the Electrical/Programming toolbox. *The type B cable goes into the RoboRio, and the USB goes into the laptop.* Do not force cables into slots! If something doesn't seem to work, ask for help.

2.4. Preparing to Run the Robot

2.4.1. **(2024 Robot)** - Open up the Driver's Station (Pinned to the taskbar, it looks like a grey box with a white play button). Plug the Xbox Controller into a USB port on the laptop.

(2025 Robot) - Open up the Driver's Station (Pinned to the taskbar, it looks like a grey box with a white play button). Plug the Xbox Controller into the top port on the laptop on the right side. Plug the button board into the second port on the laptop. You have to go into the USB in the driver's station and ensure that when you flash the controller buttons it matches with the respective ports above.

2.4.2. Looking at the driver station, make sure that all your statuses are green (communication, joysticks, and robot code).

2.4.3. For outreach mode, go into the USB Devices Tab on the Driver Station and ensure that the Controller is on Port 1. (Only Moves the Launcher, buttons are A,X,Y,B)

2.4.4. *EXPERIENCED DRIVERS ONLY - You must be approved BY the coach to drive the robot at outreach events. To drive the robot, go back into the USB Devices Tab and ensure that the Controller is on Port 0!!!

2.4.5. After everything is checked above, wait for the all clear signal to Enable the robot to run. NEVER LEAVE THE ROBOT ENABLED AND UNATTENDED!

2.4.5.1. To ensure that it is okay to drive the drive train on specific surfaces, check with your coach/ head mentor that the surface your robot is on is okay to drive on. Never drive unless you are given explicit permission and the area where you are driving is clear.

3. Connecting to the outreach XRP Robot

3.1. Preparing the XRP

3.1.1. In order for you to run the XRP, you will need the laptop in the blue case. If you are already using this laptop for the big robot, consult with the coach to determine which robot you want to use the laptop for, as you cannot use the same computer for 2 robots.

3.1.2. Take out the XRP, the OLD xbox controller, and the bag of 4 AA batteries, and the blue case computer.

3.1.3. Put the 4 AA batteries into the XRP robot

3.1.3.1. Remove the 3D printed battery cover on the bottom of the XRP by pulling up the masking tape holding it to the battery pack.

3.1.3.2. Place the 4 batteries into the battery pack with respect to the positive and negative on the batteries (aligning the flat end of the battery with the springs).

3.1.3.3. Lastly, place the 3D printed battery cover with the masking tape back over the batteries, by aligning the small tabs on one side of the cover with the notches.

3.1.4. Open and log into the computer (the pin to get in is 4118)

3.1.4.1. Plug the USB end of the controller into the computer. It does not matter which port you plug it into.

3.1.5. Turn on and connect the XRP to the computer.

3.1.5.1. To turn the XRP on, find the On/Off switch on the bottom left side of the circuit board in the middle of the XRP. It should say On and Off next to the switch.

3.1.5.1.1. Toggle the switch to where the little white part is next to the ON side of the switch.

3.1.5.1.2. Once on, the lights on the XRP should light up. If it does not light up, check the batteries to make sure they are properly installed, and check the cord running from the battery case to the circuit board, it should also be plugged in.

3.1.5.2. Go to the wifi setting in the bottom right corner of the desktop screen of the computer. Find where the network says XRP-…. . The name will vary if there are more than one XRP present, only turn on the one that you are intending to connect to your specific computer. You can also check to see if your XRP is labeled with its respective strand of numbers.

3.1.5.2.1. Click on the network to connect and wait until it says Connected for you to move on. If it asks you for a password, the password for the XRP is XRP-wpilib.

3.1.6. Open the 2024 WPIlib VS Code. It should be the icon that says this title in the second column of apps on the desktop.

3.1.6.1. Once opened, you should already see the code that is titled Robot.Java under the search at the top called XRPtest_video_code1. DO NOT TAMPER OR CHANGE

ANYTHING IN THIS CODE, IT IS ALREADY READY FOR RUNNING

3.1.6.1.1. If the code is not already up when you open the app, go to the top left corner and click File, then Open Folder. Next click Downloads, and find the folder that is called XRP Programs, double click to open.

3.1.6.1.2. Next double click the folder that says XRPtest_video_code1.

3.1.6.1.2.1. From here, don't double click on anything else, but instead go to the bottom of the window and click the blue highlighted box that says Select Folder.

3.1.6.1.2.2. The code should then be open. To get to the program you need to run, find the tab on the left side of the screen that says Robot.Java

3.2. Running the XRP Program

3.2.1. Once the code is opened, to the top right corner of the screen where you see the little Wpi logo. Click on it.

3.2.1.1. This should take you to the search bar, where you can search or find the option to "Simulate Robot Code". Click on this and wait for the bottom of the screen to say BUILD COMPLETE and for the purplish-blue simulation window to open.

3.2.2. Before you click on Teleoperated Mode in the top left of this window to enable the XRP, place the XRP in an open area, where the wheels will not get caught on anything, nor where people will step on it. Also don't place it too far away, because it will lose connection if not in close proximity.

3.2.2.1. Wait for the go-ahead to enable the robot by clicking Teleoperated in the top left corner of the window under the label of Robot Status. This will enable the controller for you to drive the XRP around.

3.2.2.2. Driving instructions for you to learn, and show and teach drivers:

3.2.2.2.1. Left Joystick: Forward and backward
3.2.2.2.2. Right Joystick: Turning and steering
3.2.2.2.3. Left Bumper: Slower Speed
3.2.2.2.4. Right Bumper: Fast/Normal Speed
3.2.2.2.5. Y: Arm extended
3.2.2.2.6. X: Medium extended
3.2.2.2.7. A: Arm folded in robot.

3.2.3. When not driving, Disable the robot in the same window you enabled it.

3.3. Packing down the XRP

3.3.1. Close out of the purplish-blue simulation window. You have to close this window out before you exit the code.

3.3.2. Next, close out of the Code window.

3.3.3. Then, shut down the computer by navigating to the Windows Icon in the bottom left corner of the desktop, click Shut Down.

3.3.3.1. Once completely shut down,

3.3.4. Disconnect and wrap the controller cord in its rubber band where you got it out of, and pack it neatly back in its respective bin.

3.3.5. Turn off the XRP the same way you turned it on, by locating the On/Off switch on the side of the circuit board. Switch the switch tab of the OFF side. When off, the lights on the XRP should also turn off.

3.3.5.1. Once off, gently move the servo until it can't move anymore inside the robot. Do not push too hard or past it's limit, it will break

3.3.6. Remove the XRP's batteries and place them back into the bag they came in. Then put the battery cover back on the bottom of the XRP so as to not lose it. Place the bag of batteries into the outreach bin.

3.3.7. When placing the XRP back into the outreach bin, place it in its respective orange XRP Box. Then, place this box on the very top on top of everything in the bin, so it does not get crushed by all of the other items. If it cannot fit into the bin, hold it and carry it with you out of the event, because we do not want the servo or the electronics to break.

4. **Professional Behavior & Body Language**
   - 4.1. **Start a Conversation** -- Introduce yourself, your role, and why your team is at the event.
   - 4.2. **Maintain open body language** -- Avoid crossed arms and stand upright at the event.
     - 4.2.1. Be approachable and aware of your body language; being mindful of this can contribute to more positive interactions.
     - 4.2.2. Do not use electronic devices at any time during the event.
   - 4.3. **Show genuine interest** -- Actively listen, smile, nod, maintain eye contact, and ask follow-up questions to encourage conversation.
     - 4.3.1. Nodding and asking follow-up questions fosters a two-way conversation that resonates more with the attendees. One-sided conversations tend to lose the attention of the audience.
   - 4.4. Always act professionally and respectfully towards everyone you meet, as you are representing the entire team and our values.

5. **Networking & Engagement**
   - 5.1. **Team Facts & Stats**
     - 5.1.1. Be prepared to share team facts, statistics, and key initiatives with attendees.
   - 5.2. **Team Promotional Materials:**
     - 5.2.1. Distribute appropriate materials (e.g., business cards, brochures) based on the audience's interests. Give materials based on interest, age, and profession.
   - 5.3. **Personal Information**
     - 5.3.1. Never share your personal contact information at any event. This includes personal emails, phone numbers, or social media accounts.
     - 5.3.2. The team has paper business cards and an RFID business card that can be shared with attendees.
   - 5.4. **Network with Surrounding Vendors/Booths**
     - 5.4.1. Take a moment to get to know the booths around yours. It's a simple way to build relationships and leave a positive impression wherever you go.
6. **Creating Meaningful Interactions**
   - 6.1. **Don't be afraid!**

6.1.1. Approach attendees who show interest but may be hesitant to engage.

6.2. Watch for cues.

6.2.1. Adapt to body language cues -- identify whether someone is in a rush or open to conversation.

6.3. Hands-On Items

6.3.1. Use visual aids and team items (e.g., prototypes, giveaways) to keep audiences engaged.

6.3.1.1. Giving an attendee something to hold and feel increases their attention much more than if you were to just stand there and talk to them.

6.3.1.2. You can give away team buttons, pins, stickers, or other swag to appeal to your audience.

6.4. Personal Stories

6.4.1. If the opportunity arises, share personal stories that highlight your passion and experiences. Talk about what drives you—why you're part of this team, what excites you about your work, and how this experience has shaped you. For example, if someone is interested in joining our team, don't just explain it—tell them what it has meant to you personally. Your story has the power to inspire and connect in ways that facts alone cannot.

7. Adapting to Different Audiences

7.1. Every Event is Different.

7.1.1. Every event you will attend is different! You should know your audience beforehand so you can better prepare for the event.

7.1.2. Attendees at a professional conference would be very different from the audience at a school social.

7.2. During conversations, adjust your tone of voice, body language, and topic of conversation to best match an attendee's interest. Communicate appropriately with each attendee to keep them interested and engaged.

7.2.1. For example, if you're talking to a child, kneel down to match their height level to avoid seeming intimidating. Slow down your speech, and use simple words that a kid would understand.

7.2.2. For industry professionals or adults who you might talk to at a conference, keep eye contact, shake their hand when introducing yourself, and use a professional, but exciting tone of voice.

8. Handling Questions

8.1. Elevator Pitch

8.1.1. Familiarize yourself with frequently asked questions about your team and initiatives! It's best to have an elevator pitch ready for each topic of discussion, and then know further details about every area of your team.

8.2. Listen!

8.2.1. Listen carefully to any question that may be asked, and then provide an appropriate and thorough response. Don't be afraid to ask for further clarification, or admit that you don't know an answer to a question.

8.3. Don't Know an Answer?

8.3.1. If you don't know the answer to a question, utilize your team members to help you out in such a situation! It's important to know which teammates specialize in different areas in the team, so you can better direct an attendee to someone who is able to effectively answer a question.

9. Overcoming Challenges

9.1. Stay Calm

9.1.1. If any issues or conflicts arise, stay calm and seek assistance from the lead coach, adult mentor, and/or team lead.

9.2. Avoid Controversial Topics

9.2.1. Don't speak about topics like politics, religion, global conflicts, effects of artificial intelligence on the world, and the economy. You're at the event to showcase and represent your team (and school or community).

9.2.2. Shift the conversation if needed. If you're able to, shift conversations back to your team or another appropriate topic. Or, you can ask them a question that can redirect them away from controversial topics.

10. Post-Event Responsibilities

10.1. Express Gratitude

10.1.1. Thank the volunteers and organizers of the event for their efforts and for allowing the team to participate.

10.2. Packing Down

10.2.1. While packing down or leaving the event, ensure that you have all of your belongings. Follow an event-specific packing list, put everything back where it belongs, and be sure to double check the set-up area before leaving.

10.3. Packing down the Robot

10.3.1. Power down the computer by exiting the driver station, and then going to the power screen on the laptop and shutting it down.

10.3.1.1. Be sure to put this laptop and its charger back in its respective blue case, and snap the case closed.

10.3.2. The same way you turned the robot on by pushing in the diagonal rod on the circuit breaker into its slot, to turn off the power you will push the extended oval button in the center of the breaker. You know the robot is off when all the lights on the robot are off and the diagonal rod is visible again.

10.3.2.1. After turning the robot off, take the Demo battery out of the robot so it's lighter to lift and pack it with your other outreach materials.

10.3.3. Using two people on both sides of the robot like when you took it off of the cart, lift the robot back into its cart. One person should also be holding the cart like before and center it below the robot that the people are holding. The people lifting should be counting down and lifting at the same time to be in sync.

11. Post-Event Reflection

11.1. Team Debrief

11.1.1. As a team, discuss strengths, challenges, and areas for improvement.

11.1.2. Update any team documentation folders or other event-specific information as it is necessary.

Team Resources

- Website: roaringriptide.com
- Instagram: @frcriptide4118
- *#FIRST*withAT Initiative Instagram: @FIRSTwithAT
- Facebook: Roaring Riptide: FRC Team 4118
- Twitter: FRCRiptide4118
- Youtube: @FRCRiptide
- GitHub: FRC-Riptide-4118