

Team Update 05

GENERAL

Control System

WPIlib update: A C++/Java WPIlib update (2021.2.1) has been released which fixes bugs discovered since Kickoff and adds the Infinite Recharge at Home Skills Competition layouts to Pathweaver. The download, and a complete changelog, [is available on Github](#).

INFINITE RECHARGESM at Home Guides

Targeting with Vision, Step 2: Find the Target

Off-the-shelf solutions – This approach uses a packaged off-the-shelf solution to find the target. These solutions generally accommodate some user tunability but are often a quite different experience than attempting to design the code from scratch. Examples of this include [Chameleon Vision](#), [Limelight](#), [Opensight](#), and [PhotonVision](#), and [Gloworm](#). Note that some of these solutions require specific hardware and some are designed for teams to assemble their own hardware solution. The WPI developed program, [GRIP](#) is a hybrid between this approach and traditional computer vision. GRIP provides an interface similar to some of these solutions, but then generates OpenCV code that can be further tuned by the user.

Kit of Parts

The process for redeeming your [Vulcan Springs voucher](#) has been modified. The codes provided in the Vulcan packets (Rookie Kickoff Kits and in *FIRST* Choice) are now invalid, so please use the Vulcan Springs code posted to your team's Dashboard (visible to Lead Mentors 1 and 2). Thank you!

Q&A

Please note, the answer to [Q27](#) has been edited.

Turkish Documentation

The Turkish version of the 2021 *INFINITE RECHARGESM Game Manual* is now available on the [Translated Documentation page](#). Please note that these translations reflect content released at the 2021 Kickoff, and do not incorporate changes made since.

2021 AT HOME CHALLENGES MANUAL

2.1 Overview

INFINITE RECHARGESM at Home brings events to teams in two (2) ways:

1. **Judged Awards:** Teams describe their ROBOT's technical qualities by sharing information with judges remotely to compete for traditional machine awards. While access to a team's INFINITE RECHARGE ROBOT is not required, access to pictures, videos, or other representation is.



While the Judged Awards component does not require any ROBOT inspection, submitted ROBOTS should generally comply with the [2021 INFINITE RECHARGE](#) ROBOT rules (i.e. no major, obvious violations).

The ROBOT used for the Judged Awards does not need to be the same ROBOT used for the Skills Competition, but the same ROBOT must be used for all INFINITE RECHARGE at Home Judged Awards.

Section 2.4.3 ROBOT & Inspection Rules

SC7. A ROBOT attempting a challenge must comply with all ROBOT rules in the [2021 Game Manual](#) with the exception of R21, R22 (i.e. BUMPER fabric may be any color and contain any markings), the “via the ARENA Ethernet network” clause of R62, and R92. Rules that reference the ARENA should be interpreted as referencing the Challenge Space for the At Home Challenges.

SC8. All submitted Skills Competition challenges runs should must be completed with the same ROBOT in the same configuration.

This is not intended to prevent teams from making minor upgrades or enhancements throughout the path of the Skills Competition. The intent of this rule is to prevent teams from making substantial changes to their ROBOT between challenges (e.g. completing the POWER PORT challenge, and then removing all POWER CELL related mechanisms for completion of the Hyperdrive challenge).

Please note that per the Blue Box in Section 2.1, the ROBOT used for the Skills Competition does not need to be the same ROBOT used for the Judged Awards part of INFINITE RECHARGE at Home.

Section 2.4.6 Rules (Galactic Search Challenge)

GSC4. The ROBOT must start in the Start Zone with any part of its BUMPERS breaking the plane defined by A1/B4 B1/D1.

Section 2.4.9.2 Rules (Interstellar Accuracy Challenge)

IAC2. Teams must attempt allocate at least three (3) POWER CELLS per zone. The remaining three (3) POWER CELLS may be shot from allocated to any of the four (4) zones.

Allocate means to assign the only zone from which the POWER CELL may be shot. Teams don't have to shoot all fifteen (15) POWER CELLS.

For example, a ROBOT may shoot all remaining three (3) POWER CELLS from NAV POINT A4 in the Yellow zone, or one (1) shot from B1, B4, and B6 in the Green, Yellow, and Blue zones respectively.

2021 FRC GAME MANUAL

No changes.