



IPSC IT FEST 2026

Half-Life

Rulebook

Version 2 · 5 November 2026 · changes highlighted

The Doon School

DEHRADUN

This document is part of the Half-Life document pack. It ties the pack together. Anything not covered by the Robot Specification, Arena Specification, Judging Rubric or Inspection and Safety is governed here.

Version 2, 5 November 2026. Text highlighted in yellow is new or changed since the version of 9 October 2026. Every change is listed in the table "Changes in this version" at the end of this document.

Front matter

Item	Detail
Event name	Half-Life
Technical name	Autonomous Ground Vehicle Navigation
Category	Robotics
Event Head	Samrat Gupta
Deputy Event Head	Vivaan Kumbhat
Participants per school	2

Terminology

Term	Meaning
Object	One of the 8 items in the pickup area that the robot must identify, collect and sort by colour. Each object is red, blue or green (Arena Specification §5).
Hazardous object	A red object. Within the rules of this event it is treated as radioactive (this is a game rule only; the object is not actually radioactive). It must be placed in the red bin within the time-critical window.
Ordinary object	A blue or green object.
Lift	An object is lifted at the first moment it no longer touches the arena floor.
Placed	An object is placed when it lies fully within a bin with no part protruding above the rim, as recorded by the judge panel (Arena Specification §9). An object that the bin marshal then removes from the bin stays placed.
Pushed	An object is pushed when it moves more than 50 mm (half its own width) across the arena floor while it is touching both the floor and the robot. An object that the robot drops and then lifts again is not pushed by being dropped.
Bin marshal	The official who empties each bin during a run (Arena Specification §9.2 and §9.3).
Handling time	For one object, the time from its first lift to the moment it is placed.
Time-critical window	For a hazardous object, the period from its first lift until the earlier of 45.0 seconds after that lift and the end of the run.
Pickup area	The 550 mm × 1700 mm zone along the left side of the arena that contains the 8 objects (Arena Specification §2).

Line track	The black line on the arena floor that the robot follows. It consists of a parking line, one branch line per object, a left trunk, a centre line, a right trunk and three bin branches (Arena Specification §3.3).
Bin	A coloured receptacle (red, blue or green) into which a sorted object is placed.
Parking zone	The marked 300 mm × 300 mm area in the top-left corner of the arena. The robot starts here and must return here.
Starting position	The parking zone. The robot is measured, placed in standby mode and started with every part of it inside the parking zone.
At rest	The robot has not moved for 3 consecutive seconds.
Parked	The robot is at rest with any part of it inside the parking zone.
Playing zone	The area inside the arena boundary wall.
Standby mode	The state of the robot after it has been placed in the starting position and before the start button is pressed, with all actuators inactive.
Run	One complete, timed attempt by a team's robot, from the start button press to the end of the run (§4.5).
Round	One scheduled opportunity for a team to complete a run within a stage of the event.
Qualification stage	The 2 rounds in which every team's runs are compared to decide which teams proceed to the final stage.
Final stage	The single run that decides the final placings among the qualifying teams.
Wall contact	Any touch between the robot and the boundary wall. A touch that continues without a break counts as one contact. A touch between the robot and a bin or an object is not a wall contact.
Human intervention	Any contact that a team member makes with the robot, an object or a bin after a run has started, other than pressing the single start and stop button.
Retirement	A team's own decision to end its run before completion or time expiry.
Retry	A repeated attempt at a run. No retries are permitted (§4.6).
Unfair practice	Any action that breaches this Rulebook with the intent of gaining an advantage, covered by IPSC IT Fest 2026 Charter, Global Rule 11.
Disqualification	Removal of a team from a run or from the event, under the conditions set out at §6.
Team	The two students from one school who compete together (§2).
Inspection session	The full check of the robot against the Robot Specification, held once at one of the robot inspection sessions in the Fest schedule, at which the design and build quality criteria of the Judging Rubric are scored (Inspection and Safety §2.1).
Pre-run check	The short check of the basic rules held at the arena immediately before each run (Inspection and Safety §2.1).
Inspection team	The officials appointed by the Event Head to carry out the inspection session and the pre-run checks.

LIDAR	A sensor that scans a laser to measure distance in multiple directions. A single-point commercial time-of-flight sensor is not LIDAR.
Judge panel	The officials assigned to score a round's run performance, as distinct from the inspection team and the Event Head.
Event Head	The official who holds first-instance authority over rulings in this event.
DoF (degree of freedom)	One independent axis of rotational or translational movement available to a mechanism.
DC motor	Direct-current motor.

1. Overview

1.1 The robot must scan the 8 objects in the pickup area, identify the colour of each one, and sort each object into the bin of the same colour. The robot carries each object along the line track to its bin, then returns to the parking zone and parks.

1.2 Hazardous (red) objects are treated as radioactive. Once a hazardous object is lifted, the robot must place it in the red bin within its time-critical window. A hazardous object that is not in the red bin when its window closes scores zero and also costs points (Judging Rubric §2.3.1).

2. Teams and eligibility

2.1 Each school enters one team of 2 students for Half-Life. Every team member must be enrolled in classes 9 to 12 at the time of the event (IPSC IT Fest 2026 Charter, Global Rule 4). Teams design, build and bring their own robot. Robots are not built from scratch on campus (Global Rule 3). Teams bring their own tools, spares and consumables (Global Rule 7). One faculty advisor may accompany each school's full delegation across all events (Global Rule 5).

3. Format and progression

3.1 The event runs across a qualification stage and a final stage. The qualification stage has 2 rounds. A team completes one run per round. A team's qualification score is the higher of its two run totals (Judging Rubric §1).

3.2 The 4 teams with the highest qualification scores qualify for the final stage.

3.3 The final stage is a single run for each qualifying team. The team with the highest total in that run wins.

3.4 Ties, for a qualifying place or for a final placing, are broken in this order, using the run that counts:

- (a) higher object sorting score (Judging Rubric §2.3.1);
- (b) shorter completion time (Judging Rubric §2.3.2); a run without a completion time ranks below any run that has one;
- (c) fewer wall contacts (Judging Rubric §2.3.4);
- (d) higher design and build quality score (Judging Rubric §2.1).

If teams are still tied, they share the placing. Where the tie is for the last qualifying place, every tied team qualifies.

3.5 Teams that do not reach the final stage are placed 5th and below in order of qualification

score, with ties broken under §3.4.

4. Run structure

4.1 Each team receives a calibration window of 60 seconds before its run begins. During this window the team may power on the robot, confirm sensor readings and place the robot in the starting position. Teams must not sort, move or otherwise interact with any object during the calibration window.

4.2 An inspection marshal confirms that the robot is in standby mode before the run begins. The start signal is the team's own press of the single start button set out in Robot Specification §6.4. Run time starts at that press.

4.3 Teams and robots may take the following actions during a run:

- the robot may scan the objects and autonomously sort every object into the bin of the same colour;
- the robot may carry objects along the line track, and may lift again an object that it has dropped;
- the robot may return to and park itself in the parking zone;
- a team member may press the same button to stop the robot at any point, as set out in Robot Specification §6.4.

4.4 Teams and robots must not take the following actions during a run (consequences at §4.9):

- touching, repositioning or otherwise assisting the robot once the run has started, other than pressing the start and stop button;
- touching any object or bin by hand;
- pushing objects across the arena floor (objects must be carried and placed);
- using any wireless control of, or communication with, the robot, as prohibited under Robot Specification §7;
- deliberately damaging, puncturing or otherwise interfering with an object, a bin or any part of the arena;
- removing an object from a bin once the robot has placed it there (the bin marshal's emptying of a bin under Arena Specification §9.2 is not a breach).

4.5 A run ends at whichever of the following occurs first:

- (a) the robot has placed every object (in any bin) and is parked;
- (b) the run time of 300 seconds (5 minutes) from the start button press expires;
- (c) the team retires the run under §4.6;
- (d) human intervention occurs (§4.7);
- (e) the robot climbs over or otherwise fully crosses the boundary wall and leaves the arena (Arena Specification §4.4).

4.6 A team may retire its own run at any point, by pressing the start and stop button a second time or by informing the judge panel directly. No retries are permitted.

4.7 A team member must not make contact with the robot, an object or a bin after a run has started, other than through the single start and stop button. Human intervention ends the run immediately. Repeated human intervention across rounds may be treated as unfair practice under §6.3.

4.8 However a run ends, it is scored on what the robot completed up to the end of the run.

4.9 Consequences of the prohibited actions at §4.4:

- (a) a pushed object scores 0 points for that run; the hazardous-object deduction applies only as set out in Judging Rubric §2.3.1;
- (b) contact by a team member with the robot, an object or a bin is human intervention and ends the run (§4.7);
- (c) an object that the robot removes from a bin scores 0 points and incurs no deduction;
- (d) deliberate damage to an object, a bin or the arena disqualifies the run (§6.2) and may be unfair practice (§6.3);
- (e) an object damaged by accident so that it can no longer be lifted scores 0 points; the run continues and the object is replaced before the next run;
- (f) wireless control or communication disqualifies the run (§6.2).

5. Scoring

5.1 Each run is scored out of 100 under the Judging Rubric: 15 for design and build quality and 85 for run performance (object sorting, completion time, parking accuracy and wall contacts).

5.2 The judge panel times every lift, every placement and the end of the run to the nearest 0.1 second, from the start button press.

6. Penalties and disqualification

6.1 Penalties during a run are applied through the Judging Rubric:

- an object placed in the wrong bin scores zero (Judging Rubric §2.3.1);
- a hazardous object that is not in the red bin when its time-critical window closes scores zero and incurs a deduction of 3 points (Judging Rubric §2.3.1);
- each wall contact reduces the wall contact score (Judging Rubric §2.3.4);
- a pushed object, or an object that the robot removes from a bin, scores zero (§4.9).

6.2 A run is disqualified, and scores zero, where the robot is found at the starting position to exceed the maximum dimensions set out in Robot Specification §1.1, is found at any time to exceed the maximum mass set out in Robot Specification §2, to use an actuator or material prohibited by Robot Specification §4.2 or §8, or to use any wireless communication prohibited under Robot Specification §7, or where the robot or a team member deliberately damages an object, a bin or the arena.

6.3 A team is disqualified from the event where it competes without having passed inspection or its pre-run check (Inspection and Safety §2.2), where it commits unfair practice under IPSC IT Fest 2026 Charter, Global Rule 11, or where its conduct breaches the escort and identity-card requirements at Global Rule 15.

7. Appeals

7.1 A team's faculty advisor or either team member may appeal a ruling within 10 minutes of that ruling being given.

7.2 The Event Head hears every appeal in the first instance. The Event Head's ruling is final within the event.

7.3 A team may escalate an appeal beyond the Event Head only on a procedural ground, such as a breach of this Rulebook's process, and only to the Appeals Panel (Organisation and Adjudication

§7.3). A team must not escalate on the basis of a measurement or timing that the judge panel recorded.

Changes in this version

Version 2 of 5 November 2026 replaces the version of 9 October 2026. Every change is listed below and highlighted in the text.

Clause	Was (9 October 2026)	Now (5 November 2026)
Front matter	Deputy Event Head: Vivaan Khumbat	Vivaan Kumbhat (spelling)
Terminology, Placed	Lies fully within a bin with no part protruding	Adds "above the rim, as recorded by the judge panel"; an object then removed by the bin marshal stays placed
Terminology, Pushed (new)	Not defined	Moves more than 50 mm across the floor while touching both the floor and the robot
Terminology, Bin marshal (new)	Not defined	Official who empties each bin during a run
Terminology, Wall contact	Touch between robot and boundary wall	Adds: touching a bin or an object is not a wall contact
Terminology, Human intervention	Contact with the robot	Contact with the robot, an object or a bin
Terminology, Inspection session	Pre-run window before every run, with design scoring	Full check held once at a scheduled robot inspection session, with design scoring
Terminology, Pre-run check (new)	Not defined	Short check of the basic rules at the arena before each run
Terminology, Inspection team	Carries out the inspection session	Also carries out the pre-run checks
§3.5 (new)	Places below 4th not defined	Non-finalists placed 5th and below by qualification score
§4.4	Touching any object by hand; removing a placed object	Adds "or bin"; the bin marshal's emptying is not a breach; points to §4.9
§4.7	No contact with the robot	No contact with the robot, an object or a bin
§4.9 (new)	No consequence stated for most §4.4 breaches	Consequence for each: pushed object 0; team contact ends run; object removed by robot 0; deliberate damage disqualifies run; accidental damage 0 and object replaced; wireless disqualifies run
§6.1	Three penalty items	Adds: pushed object or object removed by the robot scores zero

§6.2	Disqualified if found "at the starting position or during the run" to exceed dimensions or mass	Dimensions only at the starting position (they are unrestricted during a run under Robot Specification §1.2); mass at any time; adds deliberate damage
§6.3	Competes without having passed inspection	Adds "or its pre-run check"