

OFFICIAL PARTICIPANT HANDBOOK

Sentinel Vision Handbook

Category Code: HSQ-AI01

ELIGIBILITY

Classes IX - XII

TEAM COMPOSITION

1 - 2 Students

EVENT LOCATION

DAV Public School, New Shimla (HP)

Images, illustrations, renders, diagrams and photographs used in this document are for representation purposes only.
Competition layouts, equipment, schedules, judging procedures and event arrangements may change before the event.
Participants should always refer to the latest official communication released by Himalayan STEM Quest.

1. Competition Scope

Competition Overview

Sentinel Vision is an offline AI computer vision target detection challenge. Participants develop a local Python-based machine learning pipeline that identifies objects on a physical video feed on local hardware.

Problem Statement

Security camera arrays require automated detection without internet access. Local edge systems must process video feeds in real-time to identify key targets (humans, vehicles, specific flags, number plates) with high confidence.

Objective

Train and deploy a local image classification/object detection model in Python, calibrate detection thresholds, minimize false positives, and run inference locally on validation cards.

2. Guidelines & Expectations

Participant Expectations

Teams will write offline Python ML scripts (using OpenCV, PyTorch, TensorFlow, or ONNX) to run detection on target validation cards placed before the camera.

Suggested Preparation

Familiarize yourself with local machine learning models, camera frame extraction in Python, and image preprocessing pipelines.

Design Compliance Note

All physical hardware or software models brought to the arena must be verified during the morning check-in and technical compliance runs. Organizers reserve the right to alter environmental configurations inside the arena to ensure testing integrity.

3. Event Rules & Safety

General Competition Rules

- All referee calls and judge panel evaluations are final and absolute.
- Only registered student members are allowed inside active lanes and pit crew blocks.
- No wireless configuration inputs may be sent to rovers or computing models during run intervals.
- School coordinators must remain present in the campus boundaries during the entire quest.

Code of Conduct

HSQ is a collaborative ecosystem. Respect for coordinates, school properties, and competitors is mandatory. Sharing spare gear or troubleshooting help is highly encouraged inside the pit area.

Critical Safety Regulations

- Physical emergency stop controls must isolate battery supplies instantly.
- Protective glasses must be worn in active testing grid lines.
- Battery handling is restricted to safe, fire-insulated pads in the pit block.

Support Contact

coordinator@himalayanstemquest.org

Evergreen Clause

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