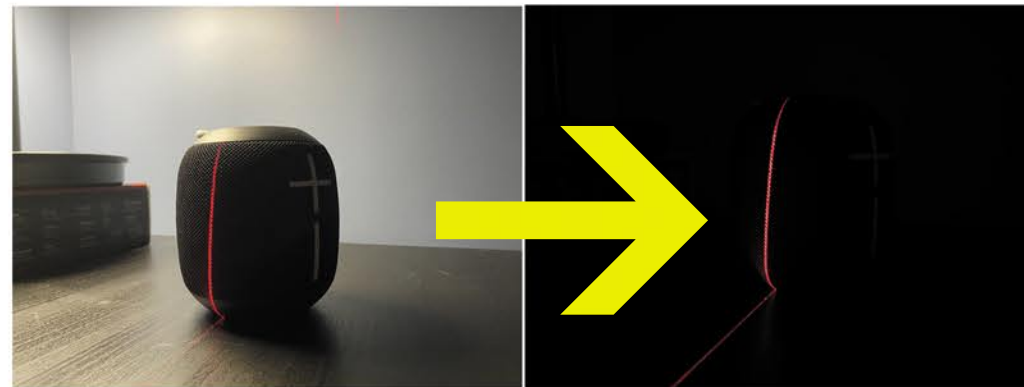# LASER SCANNING
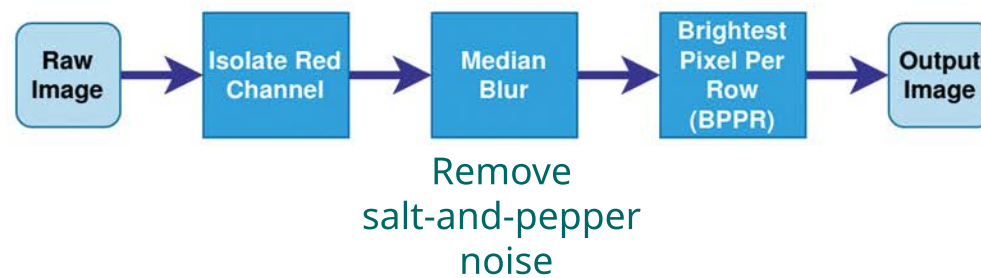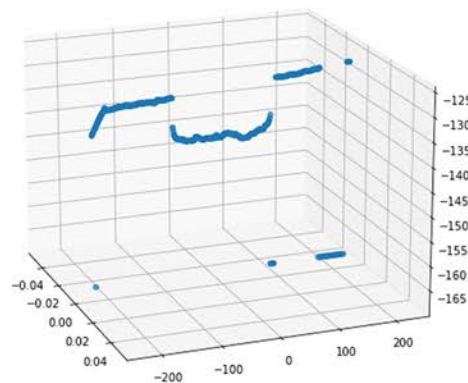
▶ **Image processing** pipeline to assist in optical laser isolation

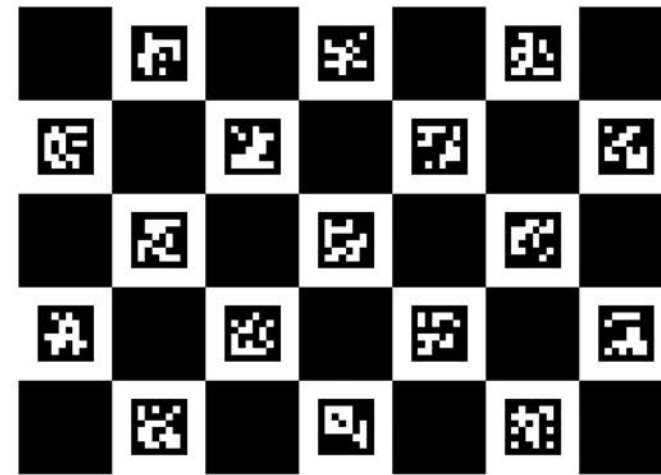Laser wavelength is 650nm (red)

Raw Image → Isolate Red Channel → Median Blur → Brightest Pixel Per Row (BPPR) → Output Image
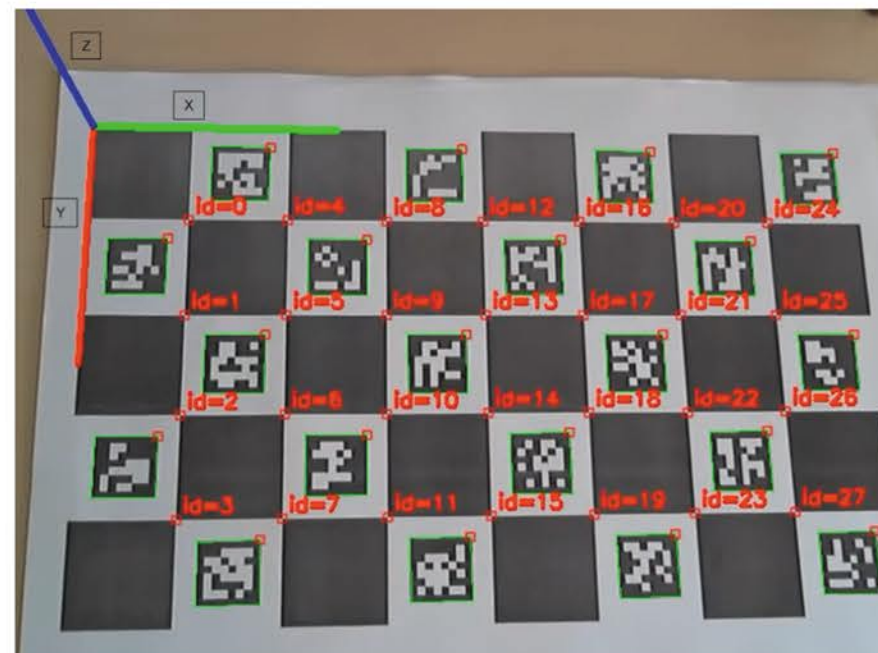
Remove salt-and-pepper noise

▶ **Triangulation** performed to compute depth
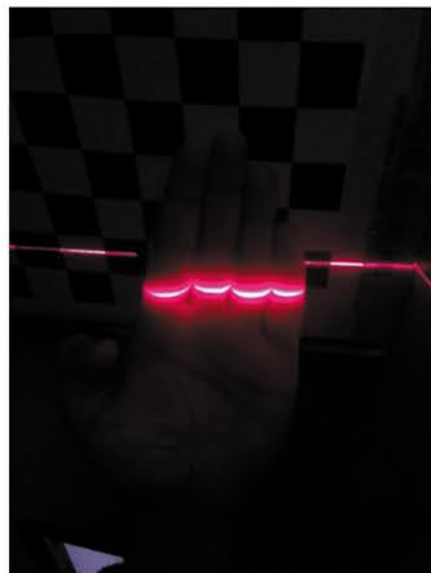
POSE ESTIMATION

▶ **ChArUco** marker board used to estimate camera pose in **real time**

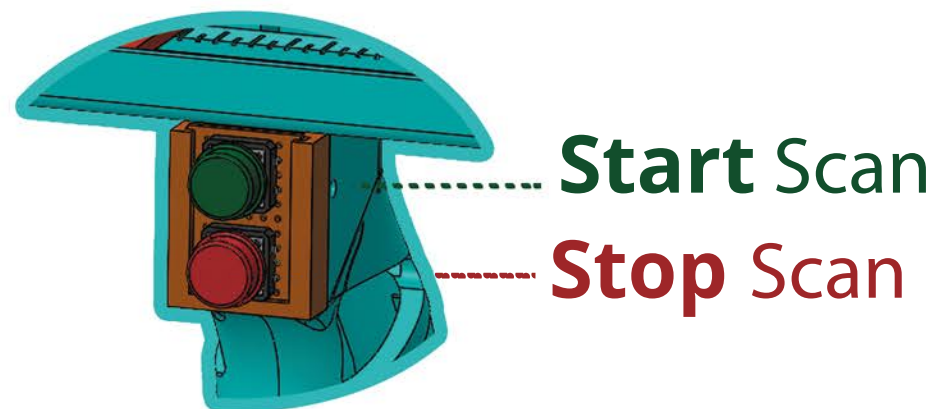
MODULAR HANDHELD
3D LASER SCANNER

PORTABLE | VERSATILE | ELEGANT

USER INTERFACE

Start Scan

Stop Scan

Scan Mode:

Scanning ON

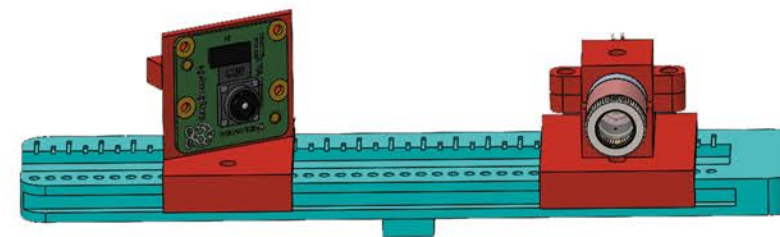**Solid**

Scanning OFF

OFF

Pose Indicator:

ChArUco Board Detected

SOLID

ChArUco Board Not In Camera Frame
(To speed up processing image will **not** be saved to video)

VARIABLE RANGE
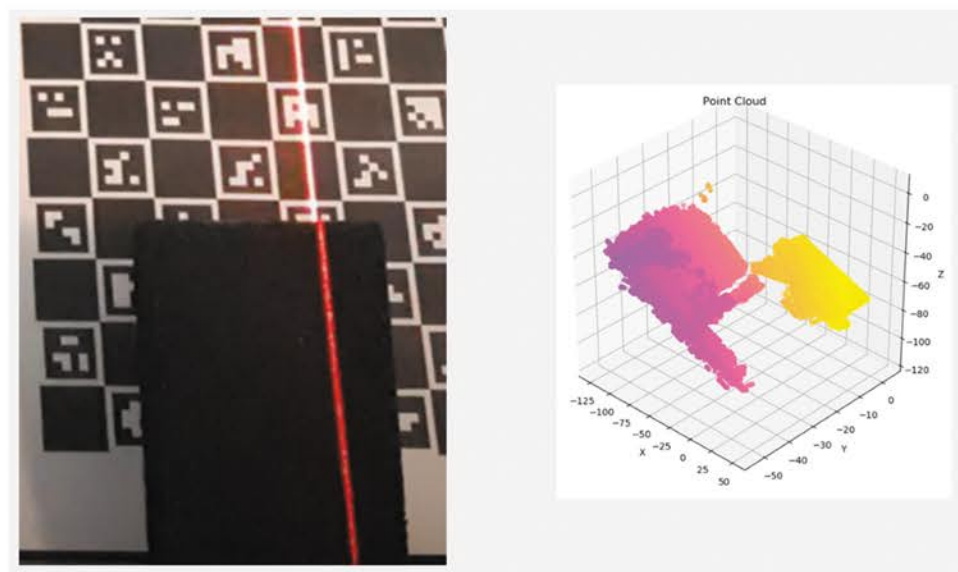

► Camera and laser are on a **linear slider**
► **Ball detents** lock camera and laser position
► Variable range is acheived by adjusting laser and camera positions

Ability to scan between 10cm to 26cm from object, tracking pose in real time using ChArUco markers. Laser line is used to generate point cloud visible in real time to the operator on a monitor.

POINT CLOUD GENERATION

MODULARITY