

CASE STUDY: OCCIPITAL

Production line calibration for multiple sensors flashed direct to firmware

PROJECT DESCRIPTION

Occipital is a spatial computing company. Their newest sensor, Structure Core, is an embeddable module that creates a depth map through a pair of active infrared stereo cameras along with other sensors.

CHALLENGES ADDRESSED

Structure Core's active infrared stereo cameras need a valid calibration configuration flashed to the device's firmware to operate. Data streaming and calibration configuration represented a significant bottleneck in Structure Core's production line process.

PROPOSED SOLUTION

A fully automated calibration process was designed around all sensors onboard a Structure Core module (this includes the infrared stereo pair, visible camera, and IMU). This process used unique sensor code that streamed all relevant data while working around the processor's calibration configuration requirements.

TANGRAM APPROACH

- Utilize a robot arm jig for repeatability
- Automate entire calibration process with a single button press to execute every step
- Immediate calibration validation

RESULTS

Calibration time for all sensors on a Structure Core module was brought down to 1 minute and 20 seconds, which took pressure off of the calibration station as a production line bottleneck. Sensors were subsequently verified and shipped fully functional.

