

# CASE STUDY: MISTY ROBOTICS

Multi-sensor calibration for a developer-friendly mobile robot

## PROJECT DESCRIPTION

Misty is a programmable personal robot for developers. It works off of two separate sensor suites: a Structure Core depth sensor from Occipital in the Misty visor, and an RGB camera and IMU suite attached directly to the Misty chassis.

## CHALLENGES ADDRESSED

Installing the Structure Core into a Misty visor took the entire Misty perception system out of factory calibration. This would cause Misty robots to lose tracking and mapping capabilities, and every sensor would be misaligned.

## PROPOSED SOLUTION

Structure Core's production line calibration process was extended to include all sensors on the Misty chassis. This comprehensive calibration process was tested and verified at Misty's US-based headquarters, and then transferred to Misty's international production facility.

## TANGRAM APPROACH

- Calibrate every sensor on the Misty platform in one comprehensive process
- Coordinate data recording between Misty's Android platform and the Apple OSX platform controlling Structure Core, allowing real-time calibration
- Perform full depth quality validation for Structure Core after calibration

## RESULTS

Our solution saved significant time during Misty's development and manufacturing stages. It also enhanced the Misty user experience, as no additional calibration steps were required after manufacturing.

