



VISUAL IMPAIRED HELPER

Overview

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Problem Statement

Many visually impaired people require walking sticks or even guide dogs, the problem with these methods is that they do not leverage the technology that is available today, guide dogs are also very costly and take time to train and are not always readily available.



WITH DOG



WITH STICK



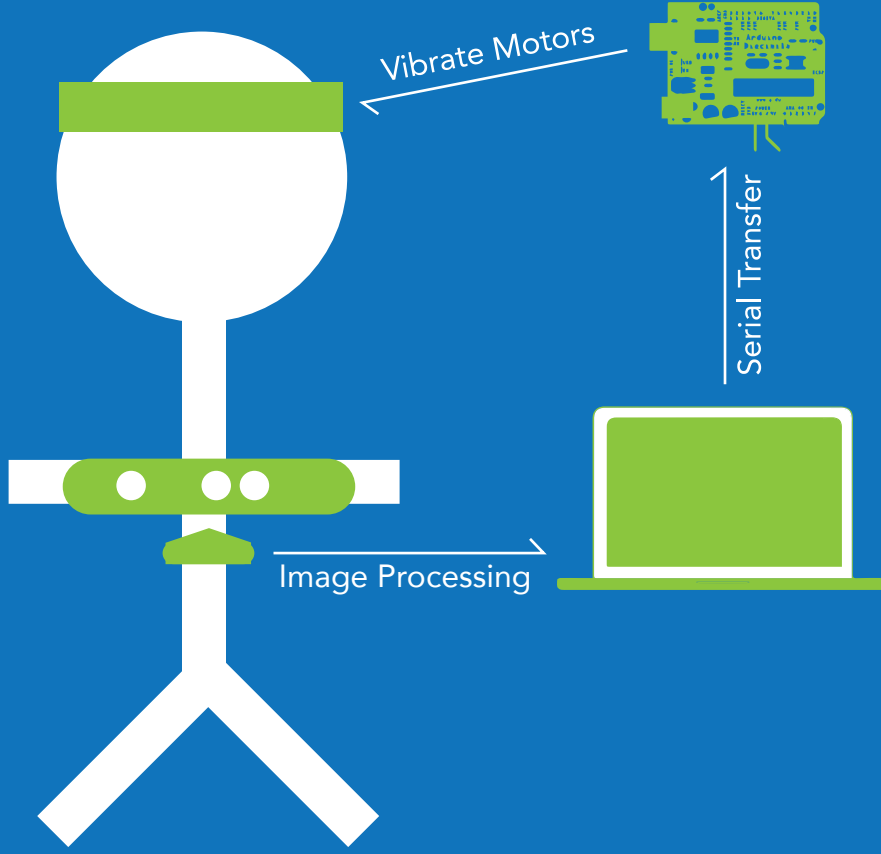
WITH VIH

User Requirements

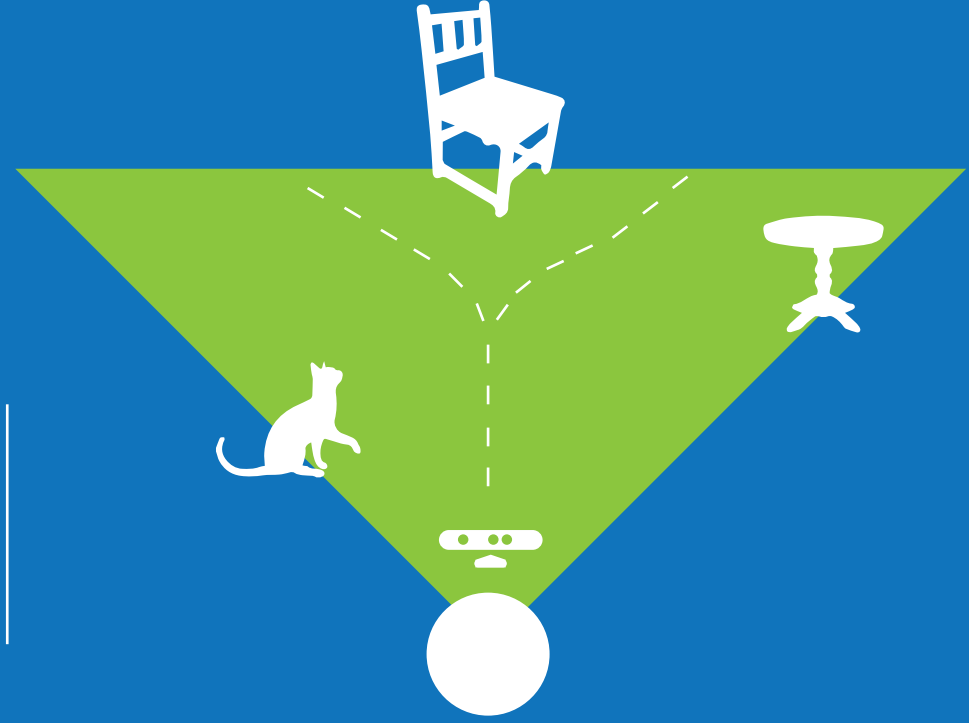
The system should allow the user to decide where he/she should move to not collide into objects and other people.

The system should also not interfere with the users other motor senses.

High Level Design

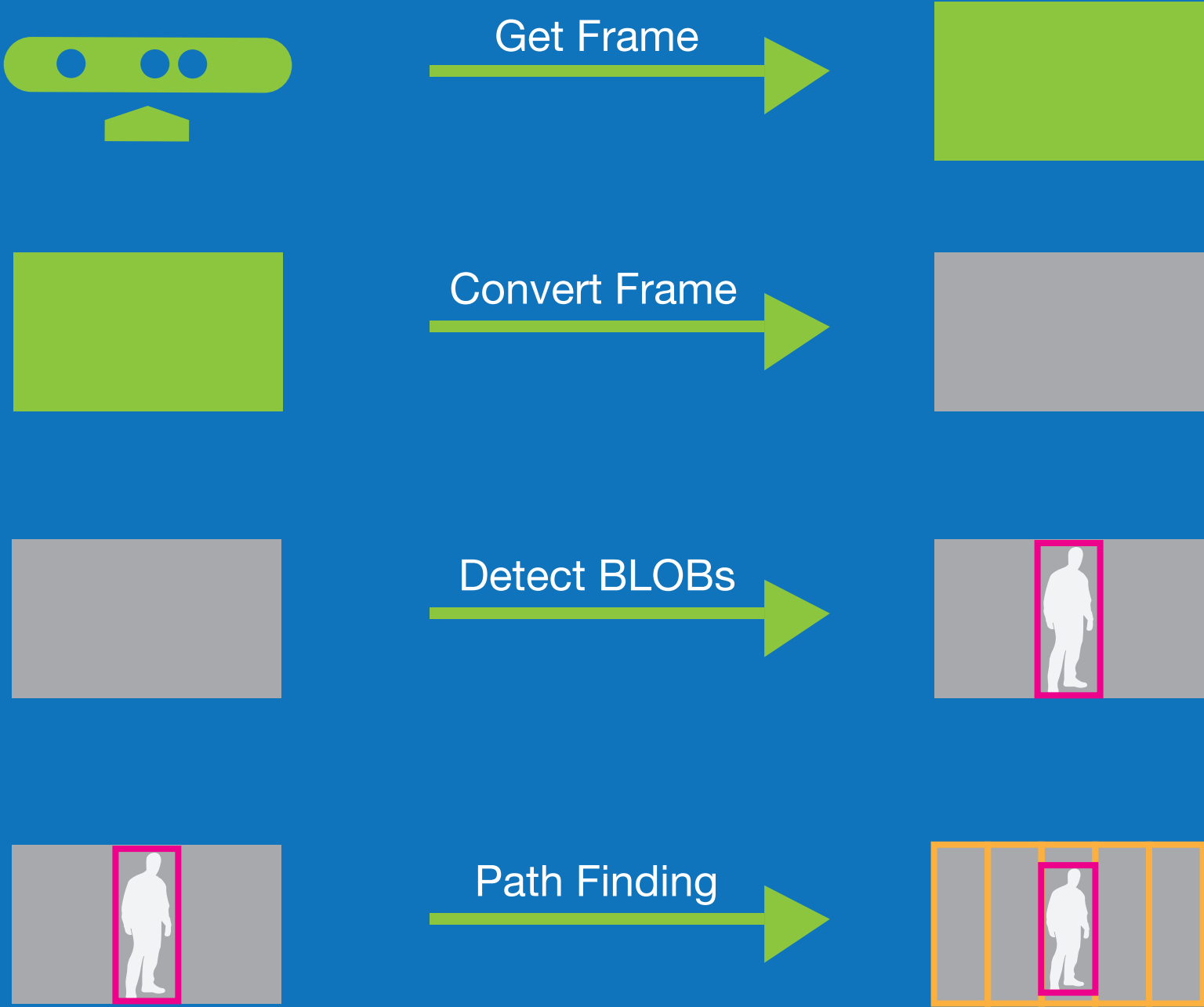


800 mm MIN

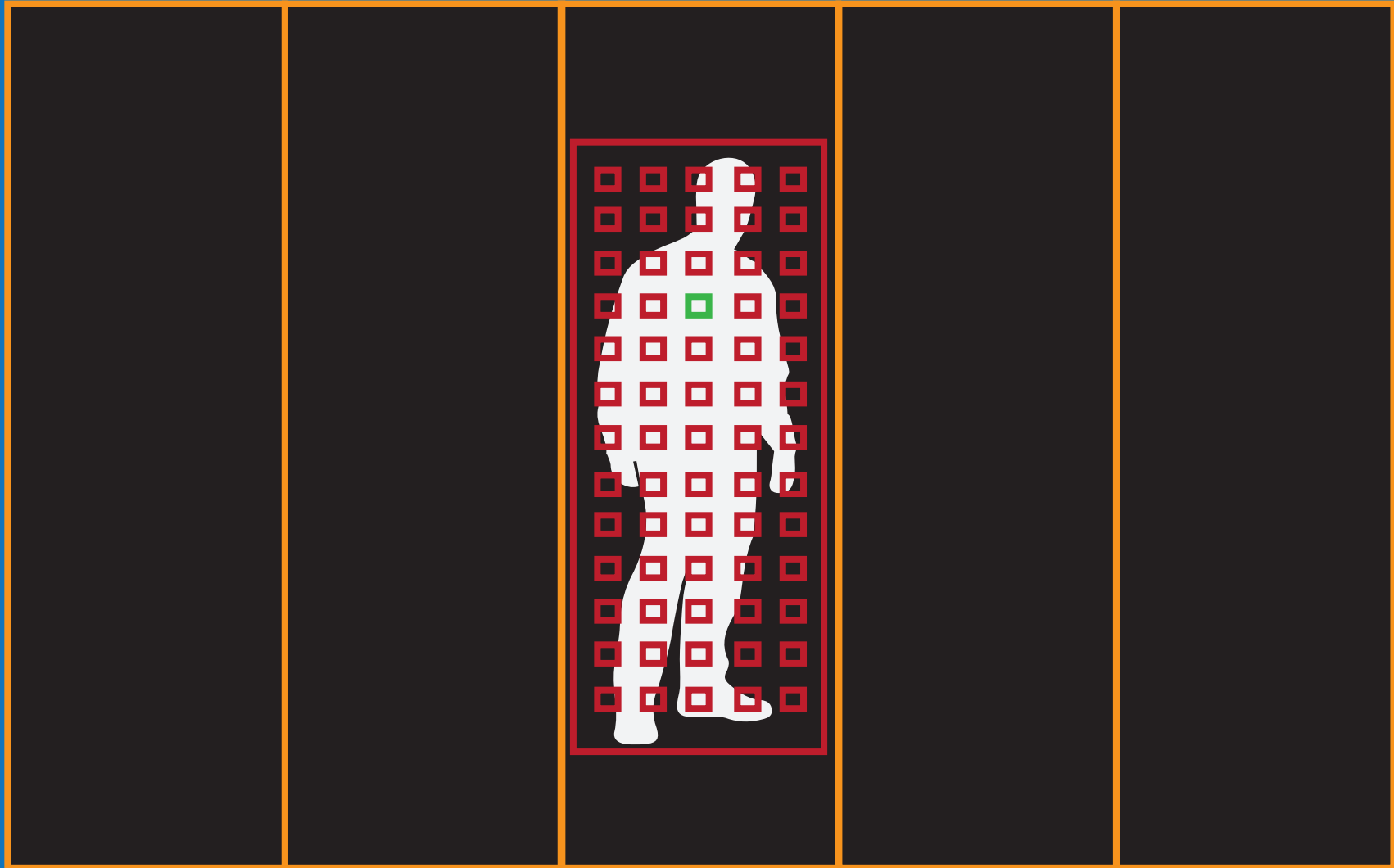


2000 mm MAX

Vision Implementation

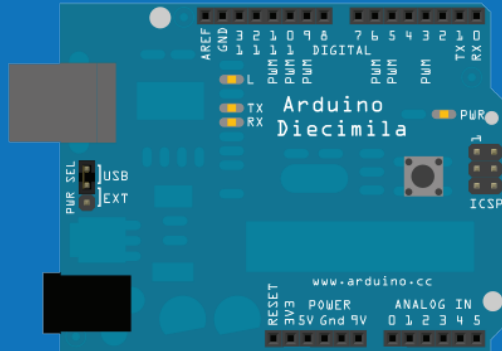


Vision Implementation (Cont.)

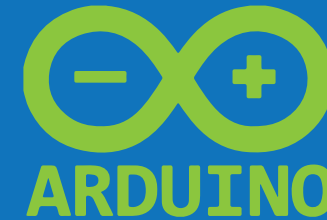


0,0,255,0,0

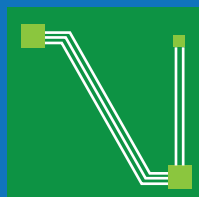
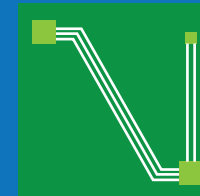
Engineering Implementation



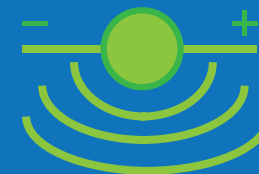
SDK



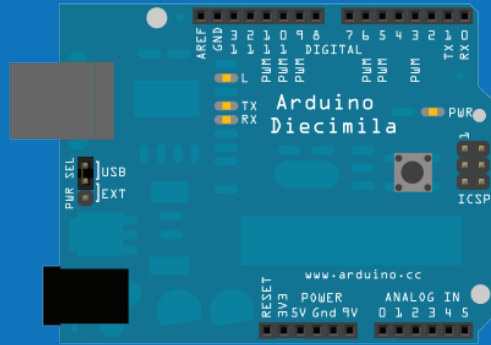
Send Commands To
Circuit Board



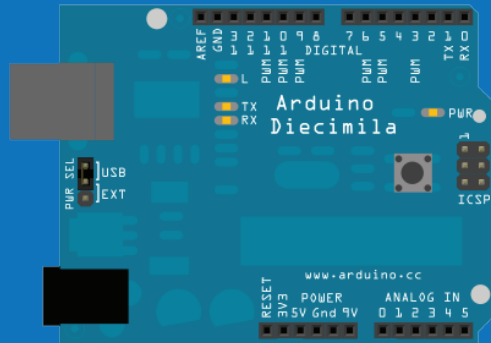
Vibrate Appropriate
Motors



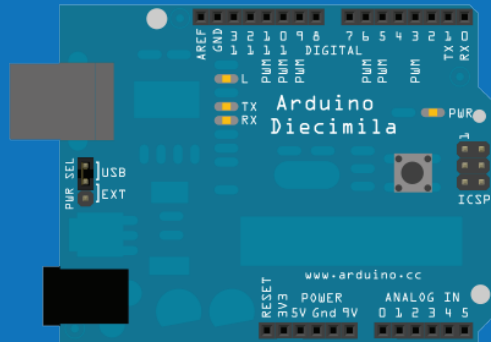
Engineering Implementation (Cont.)



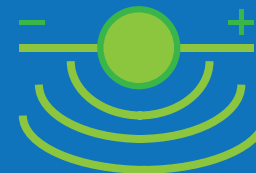
Wait For Serial Connection



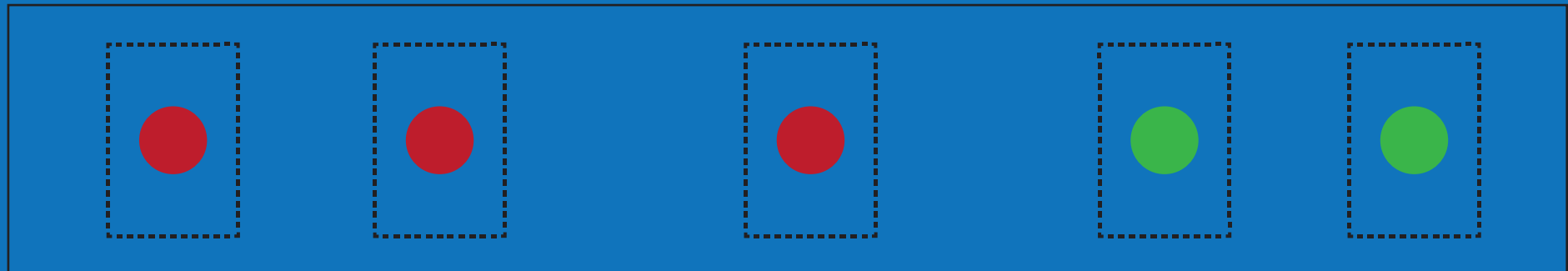
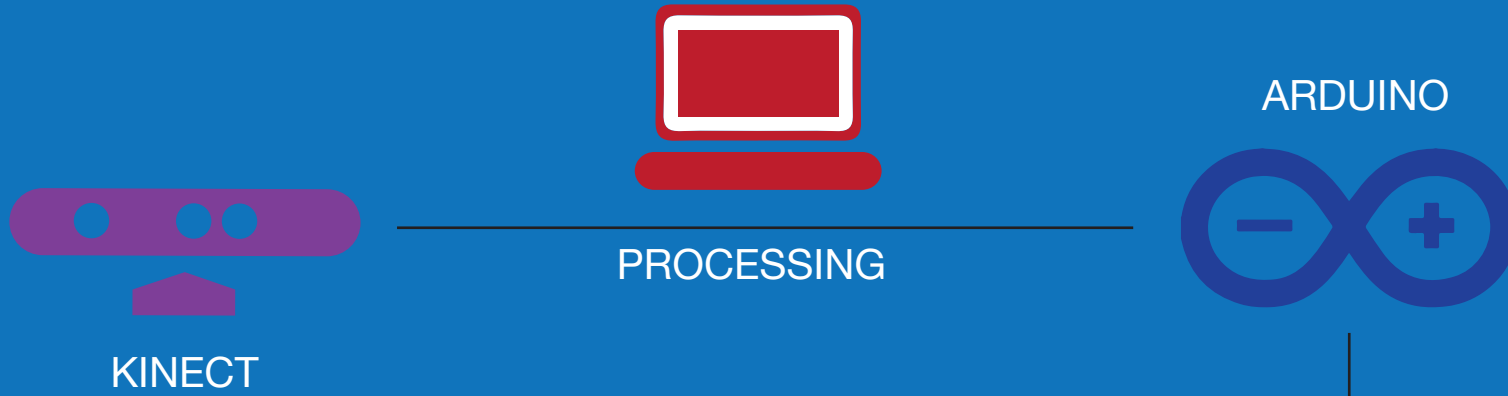
Read Data From Serial Port



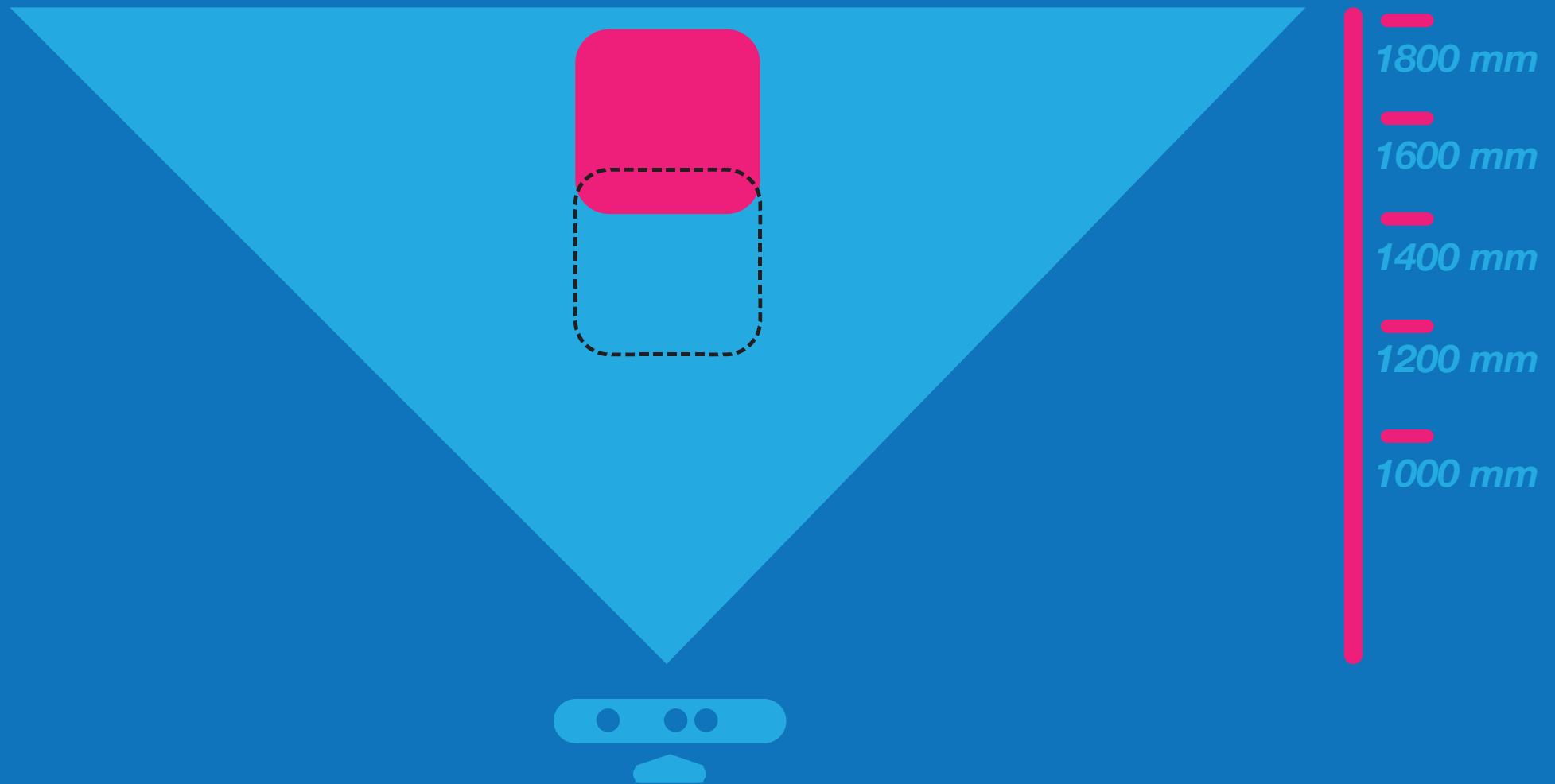
Vibrate Motor



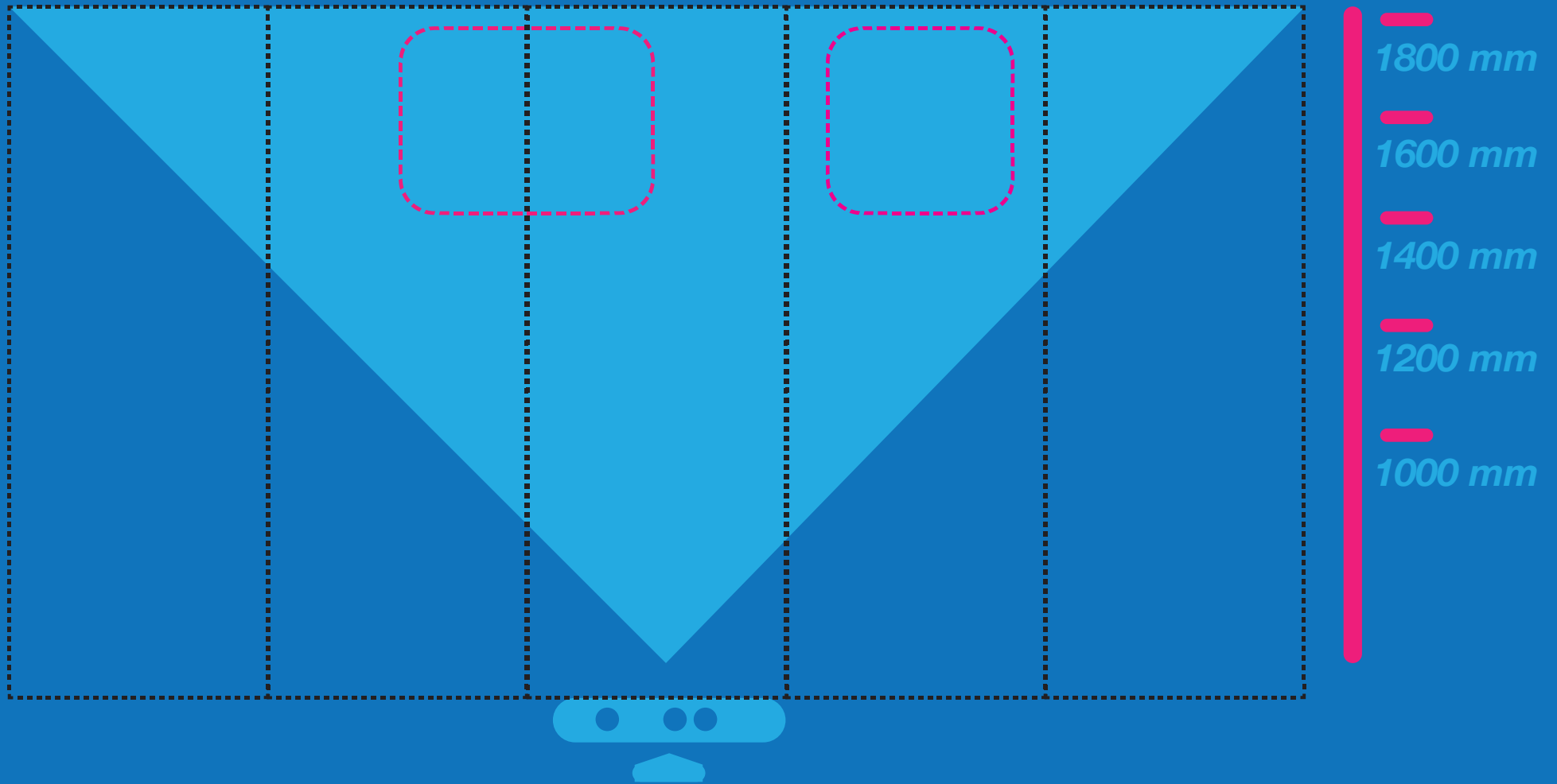
User Interface Specification



Experiment 1 - Distance Accuracy



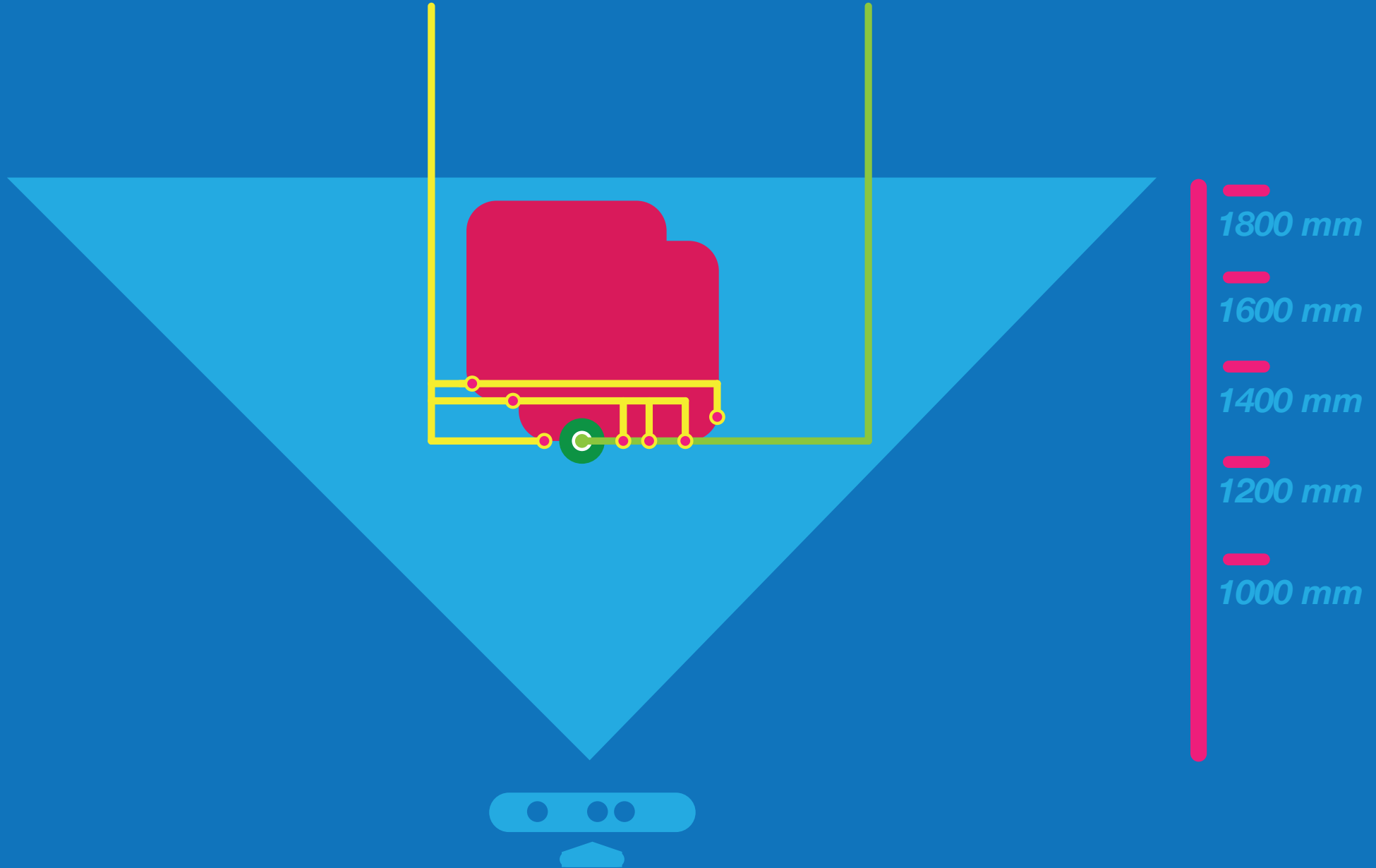
Experiment 2 - BLOB Detection & Pathfinding



Experiment 3 - Getting The Closest Distance

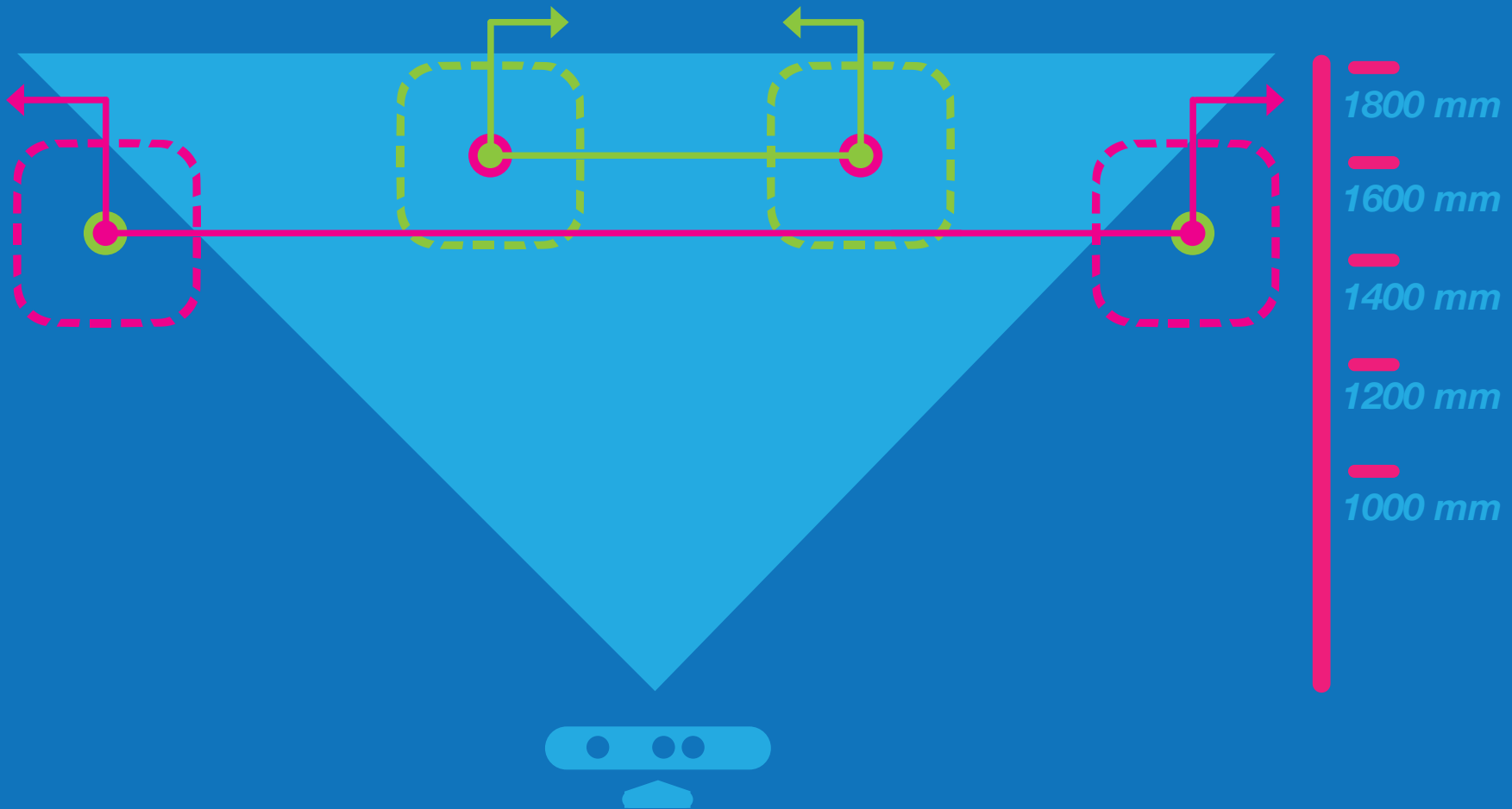
Sampling Points

Closest Distance

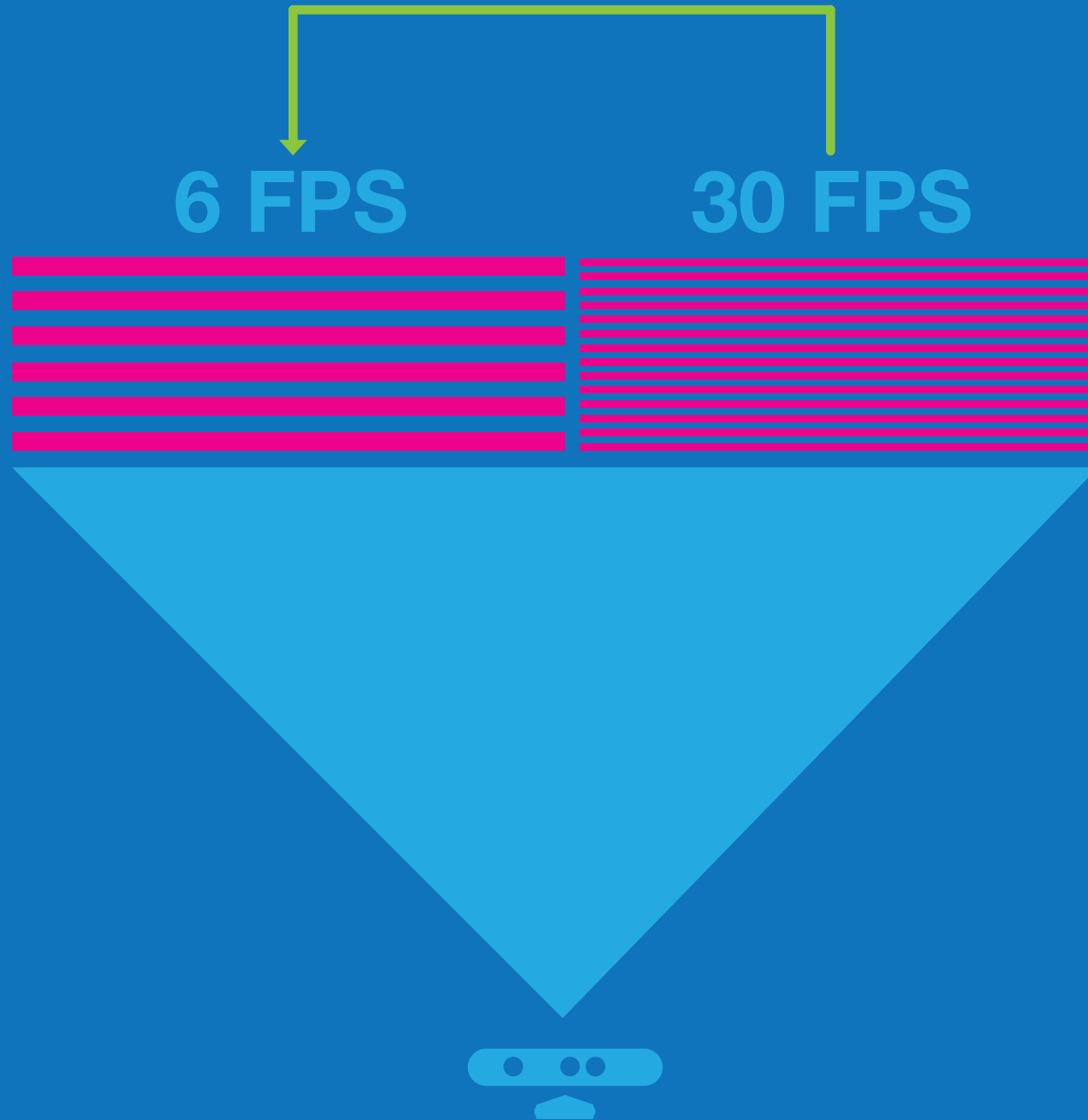


Experiment 4 - Minimum & Maximum Widths

VIBRATION MOTORS



Experiment 5 - Frame Rate Impact



Demo