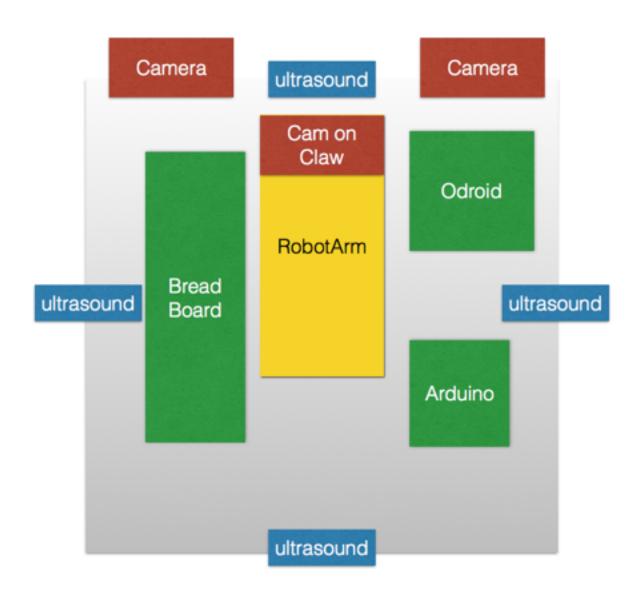Odroid - main server that will all ROS node communication.

Arduino Uno w/ Motor shield - client ROS node that will handle movement of Robot Arm joints.

2 cameras - Connected to the Odroid with Opencv library. Wrapped with ROS node

Thinking about the possibility of using a third camera to check if the ball has ben captured

planning to use ultrasound sensors to detect obstacles and avoid them. Currently planning to use it with Arduino itself

Ultrasonic

Laptop (RoS Master Node)

Initial command to
engage client Nodes.

Collision detection

Stereo vision returns depth
of the ball.

Cameras
(Open Cv Ball
detection)

Odroid   (Client
with all other

Ultrasonic /
Camera

RoS calls imageNode to start the
detection of the ball.

Start the RobotNode for
autonomous engagement to the
ball.

Once Stereo vision returns correct
depth. Call the MotorNode to initiate the
pick up motion.

camera detect ball in the
claw.

ball detection.

IRobot

Arduino Uno -
Motoshield

Robot Arm

Pick up the ball.