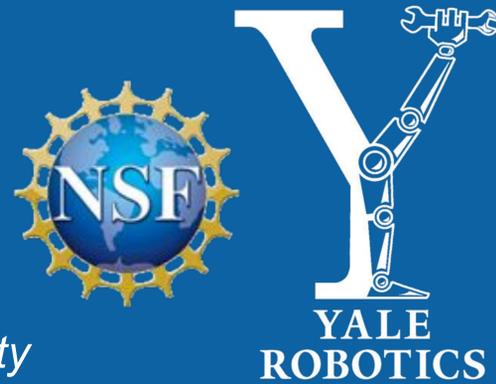# MyMuseum: A MyKeepon Museum Exhibit

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Overview

We have developed a **low-cost, open-source research and outreach platform for socially assistive robotics and human-robot interaction** by modifying a commercially available robot toy (MyKeepon).

These modified robots are used in a **museum exhibit to encourage public interaction with robots**. In this exhibit, a robot will "pair" with an observer as long as that observer maintains mutual eye contact with the robot. While paired, robots will follow the observer with their gaze and mimic some head motions.
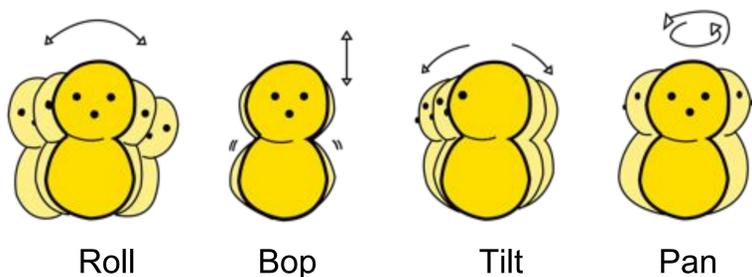
Software

Camera → Face Tracking → Arduino Motor Controller → Robot
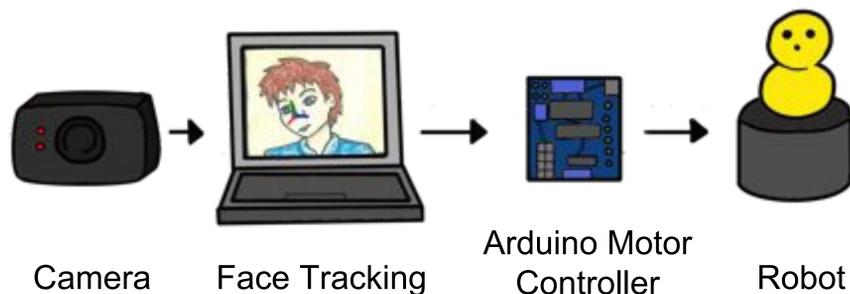
Input from webcam is processed with face-detection software from Omron

ROS-based controller interprets face detector data and sends motor commands to robot via Arduino

Hardware

Roll   Bop   Tilt   Pan

Original MyKeepon motors are replaced with more precise, programmable hobby servos enabling four degrees of freedom

An Arduino Uno controls the motors

Aside from motors and motor boards, all custom components are 3D printed, including internal motor harnesses, pan base, and camera sling

Benefits

Research
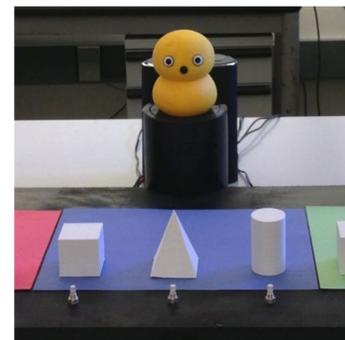
Low-cost (sub-$200), open-source research platform

Evocative robot designed for human-robot interaction

Conduct multi-robot or in-home trials without limitations of expensive hardware
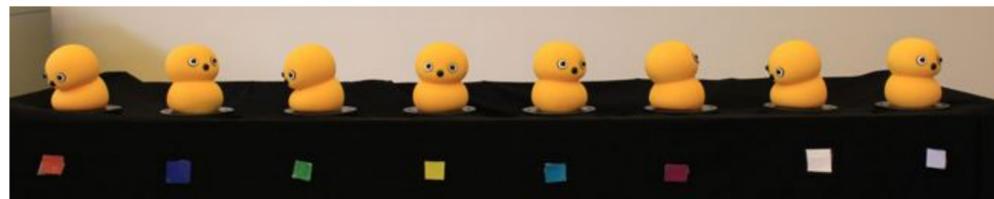
Actively used for research on child-robot multi-party interactions and cognitive perception of robots

Leite *et al.*, in preparation   Admoni *et al.*, CogSci 2014

Admoni *et al.*, HRI 2013

Outreach

Raise public awareness of robotics research

Excite the public about computer science and engineering

Robots can be adapted for classroom use to teach hardware and software skills

World Science Festival, NYC, June 2014