

Assistive Eating

A Ryan Project

Problem

Some people can't feed themselves due to different reasons such as muscle weakness, dementia, age, a lack of finger dexterity, and diseases such as parkinson's.

Several Examples

- Babies who don't know how to use eating utensils
- Elderly suffering from dementia or parkinson's and are unable to feed themselves
- Paralyzed, Amyotrophic Lateral Sclerosis (ALS), cerebral palsy, spinal muscular atrophy (SMA),

Several Considerations

- Babies are fed by parents and need to be taught how to eat
- Elderly or disadvantaged: usually have someone to care for them. luckily in canada there's retirement home but in other countries that are less developed, the care for the elderly is much worse

Scope

The primary scope is for the elderly and disadvantaged. The design showcased today will be for the elderly who are totally unable to feed themselves.

What is out there already?

Obi:

Uses a teaching method to guide the hand to learn a path and then performs it



What is out there already?

iEat:

Lack of information, but most likely
is just adjusted to a particular set of
instructions



What is out there already?

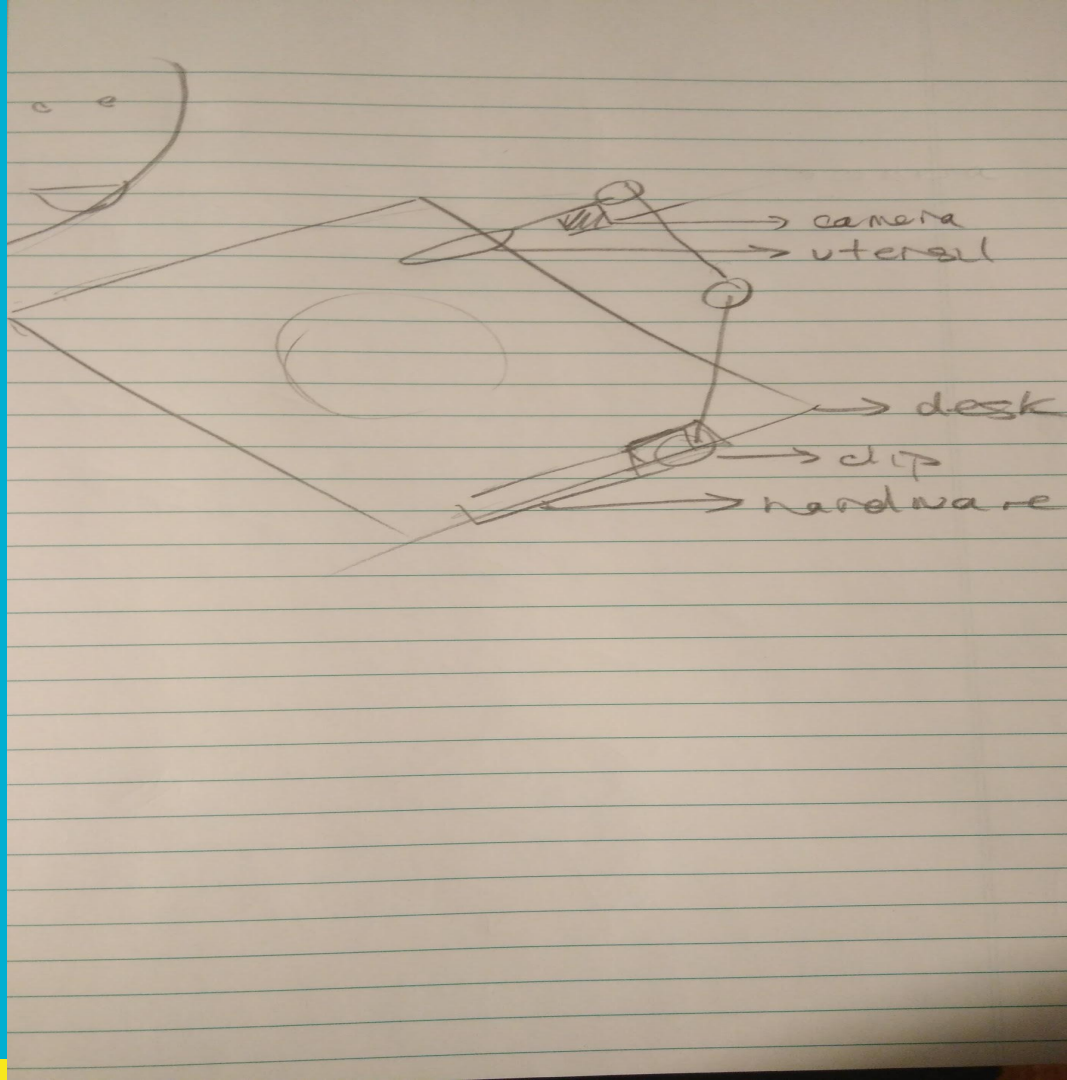
Arm-A-Dine

Sentiment analysis on face to give food to other person. Only partially autonomous as there are no sensors and only move up and down and thus need to position yourself to eat



My Solution

- clipped to tray
- uses servo, arduino motors
- webcam, raspberry pi, proximity sensors
- mouth recognition opencv



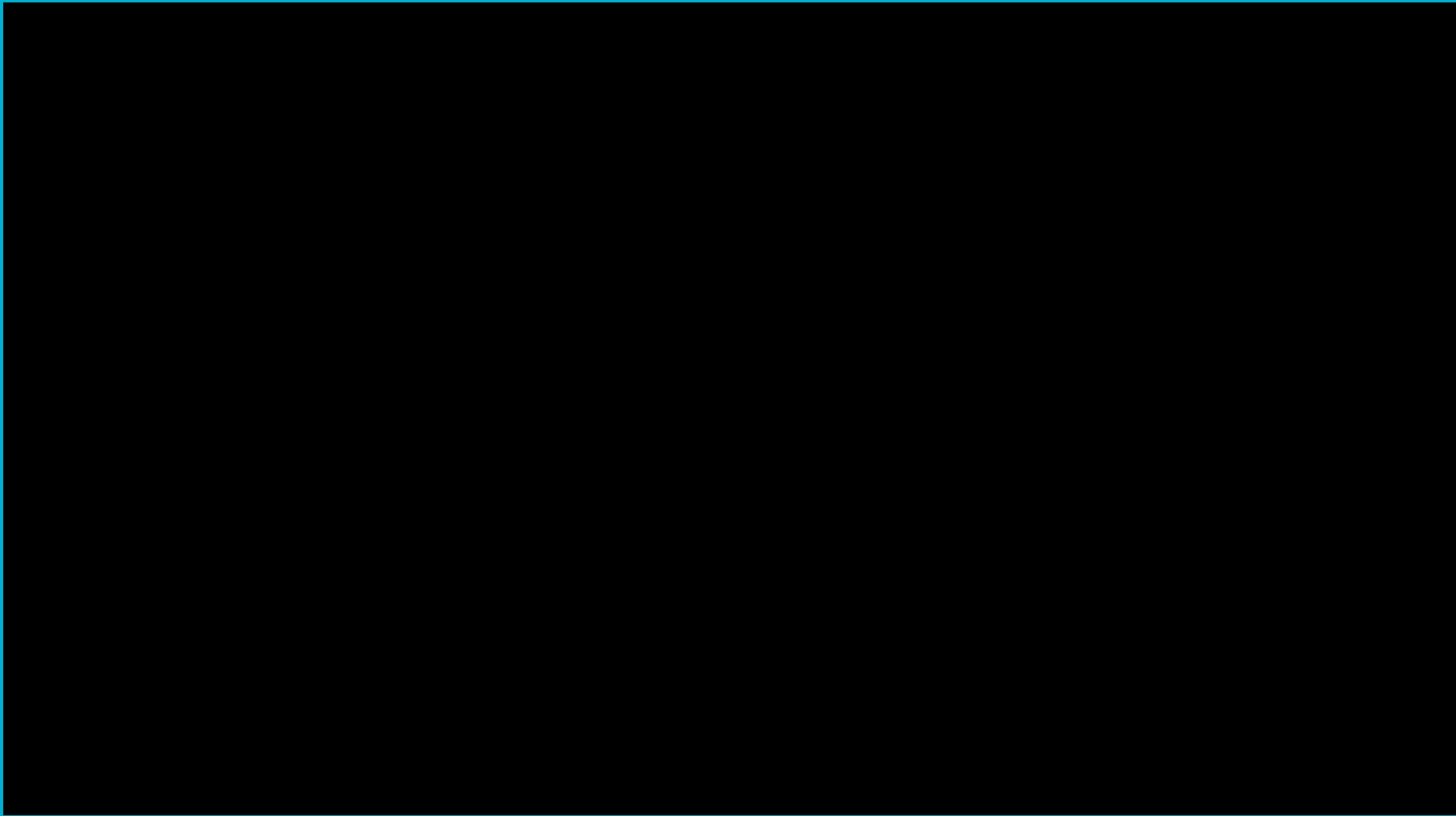
Considerations

Tell the robot when your ready for next bite

Need for prompting to chew and swallow

Recognition for different types of food

DEMO



Questions?
