Group B: Pill Detection Project

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Problem Statement

- Detect if someone is putting a pill in their mouth using a camera

Scope

- Patient shouldn't try to hide the pill on purpose (malicious patients are out of scope)

- Good lighting (precondition)

- Only one person should be in front of the camera (precondition)

Plan of Use

1) Place pills on table

Smartphone

2) Point at pills with back camera

3) Place phone against wall

4) Take pill between fingers

4.5*) Show pill to camera
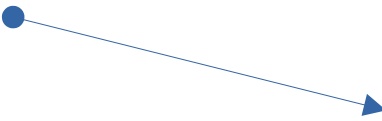
5) Take pill, drink water

6) Repeat for other pills

Arduino/RPi

2) Take pill

3) Drink water

4) Repeat for other pills

*May not be necessary in final prototype (may also depend on camera angle)

Smaller Descriptions (Venn Diagram)

Smartphone	Smartphone/RPi	RPi
- An android app to wrap the common code	- Gesture recognition logic/model - Obj. det. model - Searching for faster face/hand models - Backend coordination logic (common to phone & rpi)	- Deploying on RPi

All
- Detecting falling (background subtraction?)
- Testing prototype accuracy by taking pills in front of it

Arduino/RPi
- Looking into camera rotation with servo if a better angle is necessary

- Training an obj. det. model
- Model pruning, optimization, if necessary
- Deploying along with detection logic

Arduino