

Chloe Research Questions: Coding, Motors

- Codes -

- 1) Research on coding and Arduino, how to make it work on its own?
- 2) Relay code tutorial, what it is and how it works?
- 3) Find codes for LEDs (color effect) sensors (distance + movement) and sounds? ✓
- 3) <https://learn.adafruit.com/adafruit-arduino-lesson-3-rgb-leds/arduino-sketch> ← LED
- <https://playground.arduino.cc/Code/PIRsense> ← sensor (motion)
- https://www.tutorialspoint.com/arduino/arduino_ultrasonic_sensor.htm ← distance sensor
- <https://playground.arduino.cc/Main/RickRoll>
- <https://learn.adafruit.com/adafruit-arduino-lesson-10-making-sounds/arduino-code> ← sound
- 2) relays have two channels, and 3 main possible connections each → <https://randomnerdtutorials.com/guide-for-relay-module-with-arduino-example/> (example)

- Motors -

1) Motors that work with pumps or good in general?

1) Dinky Micro Water pump mini submersible pump fountain pump aquarian water pump
Small DC motor water pump 3V 4.5V 100 L/H

• quiet, low voltage, small size, saves energy, submersible (on Amazon)

Squirrel cage motor? Single phase

LCD SCREEN -

SCL = Serial Clock
SDA = Serial Data } must be connected to VCC through a pull up resistor

Adafruit Library		USB	
DU	12	D0	10
DI	11	D1	9
CS	9	CS	(GND)
DC	9	DC	11
RES	10	RES	13

OLED SCREEN CHART

VCC		power supply
GND		ground
DU	SCL, CLK, SCK	clock
DI	SDA, MOSI	Data
RES	RST, RESpin	reset
DC	A0	Data/command
CS		chip select

A - Assembly -

1) Research assembly and how to build product?

fiberglass with solid wood, 3D printed "shell"

CODE

- LED ✓ code works
- Sensor ✓
- Speaker ✓
- Pump ✓ *Make small enough*
- Switch ✓
- Battery ✓
- LCD screen ✓
- Motor ✓ *size?*
- Wires ✓

□ 3D print

- Tryout Boogle eye sensor
- LCD screen

*Range Finder
ultrasonic*

□ Body of Dispenser

- See how much soap is in a bay

□ Poster *Sat???*

□ Packaging??

NAME!!

Chloe

LCD screen

Alexa

Sensor

- Soap thingy
- Pump size

Todo when back from

SPRING BREAK

Fruits organic stuff use in product ?? → other companies, see if it can be used w/ our design

Research Assembly Product ?? Research on Coding ??

Research on pumps ?*
Research on water Filters ?*

How to make it work on it's own ??

- Sensors ??
- PIR ??
- Motion ??
- Ultrasonic ??
- Moisture ??

How it works?
Best worked for?
where do you see it used more??

* Research on mechanism that work well with pumps?

motors that ~~work~~ work out with pumps or good in general?

Relay tutorial and research?
what is it?
How it works?

Research sanitizing Spray? that work well w/ things?

Find Codes for Leds
Sensors
& Sounds

(Make outside look cool)

Redesign of it

- whats the point ??
- Problems solve ... guy water process water pollution
- Infographic Pamplet ??
- whos gonna refill ??
easy ??
- Natural Antibodies ?
create mix or buy ??
- LED and Sound ?

- Blueberries → anthocyanin which has an antioxidant
- Tumeric → curcumin
- Oranges + lemons → Lemons →
- Pineapple / How to make liquid hand soap.
- Germinating Plants.
- Talk about about Castile soap.
- Add in many oils essential (lemon)
- Skin care oils.

- antimicrobial
- antibacterial
- antifungal
- antiviral
- antiparasitic
- antipneumonia
- antipneumonia
- antipneumonia
- antipneumonia
- antipneumonia

oregano highest carvacrol

- Tea tree oil
- Almond oil
- Lemon oil

pumps in the poster can they be used for our project??

Abstract Atomic number filter → Removes Airborne, water, bacteria → salmonella

Solar Panels / makes energy w/ LEDs → Buy small ones that can be soldered to our project....

Comps Flow: what Pump do automatic soap dispenser use??

Step Motor: Control angular position of rotary w/ no close feed back.

(simplest) loop system / Rotates a stepper teeth Rotation active wheel.

Smooth motion / high performance every application.

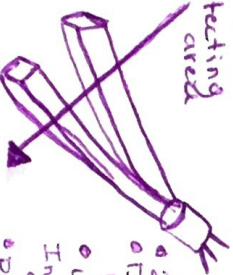
6 volt : slower things w/ more torque.

Servo Motor: Toy cars / walking robots / Planes.

small powered!

PIR Sensor.

- Most complicated
- Multiple variables in input affect output
- Detecting area



- Detect change in infrared energy giving off by humans and animals by heat.
- Don't do much but "see" heat
- Warm body
- Intercepts first sensor
- Positive change between both halves.
- Change pulses is what's detected.

Moisture sensor

Use Passive infrared sensor or the Redox based sensor

Ultrasonic sensor

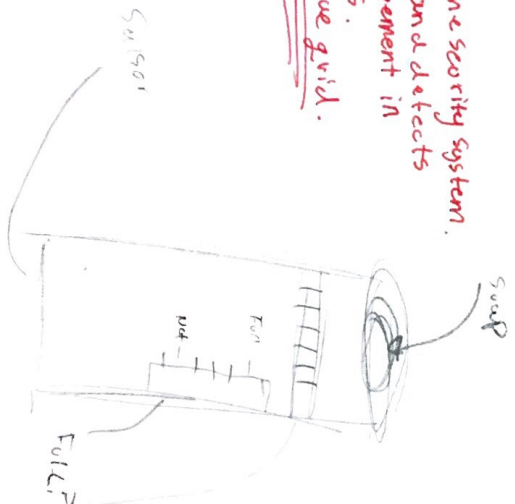
- emits sound waves, at a frequency to high for humans to hear, wait for sound to reflect back, calculates the distance.
- Similar to how radars work.
- Work well for areas with little space

Moisture Sensor

- used to measure water content soil
- Multiplexed used to make a Probe
- Probes used for groundwater
- Typically used to estimate Volumetric water content.
- works with 2 probes with measure volumetric water
- Measures how wet or dry the soil is.

Motion sensor

- Detects body heat
- Mainly used in home security system.
- Sensor heats up and detects heat and movement in surrounding areas.
- Creates Positive grid.



Fruits and organic antibodies

Other companies products?

Sanitizing Spray? that work well w/ things?

Pumps?
Water Filters?
Solar Panels?

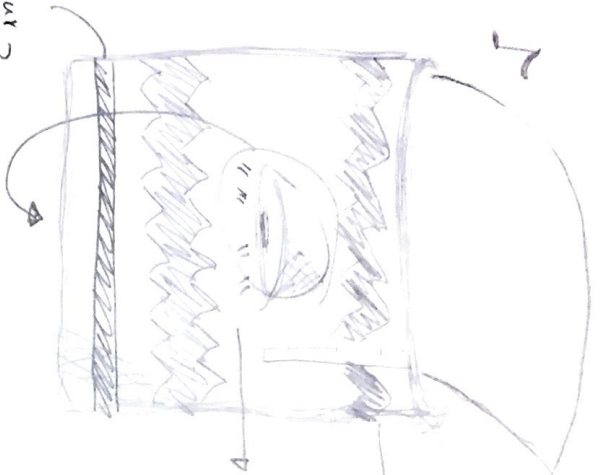
~~Water Filter~~
~~Water Filter~~
~~Water Filter~~

Sensors?
PIR? Motion?
Ultrasonic?
Moisture?
How it works?
Best worked for?
Where do you see used more?

Positive change?
Negative change?
Positive grid?
Negative grid?
Vegetative grid?
Probe?

FluVate: Rise and Fall irregular in number or amount

ALEXIA'S DESIGN #1 / Research



Make it pretty (add things) on the out side.

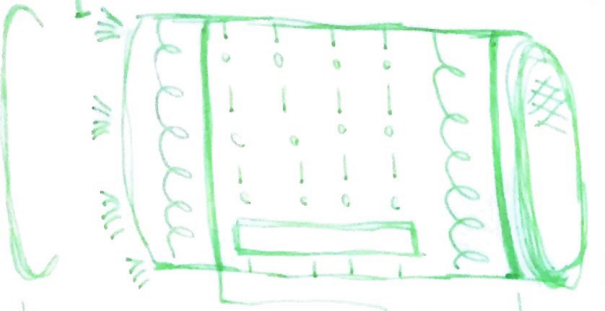
Light → LED's → Sound
 Turn on when sensor is in used → Turn on when sensor was used.

Mechanical component?
 Structural component?
 Electrical component?
 Automation component?
 Problem targeted?

Arduino (power source)
 Solar panel?

Electrical Component
 - Arduino
 - adding sound / LED

Solar panel?
 How much light needed to make it work?
 Light for trees?

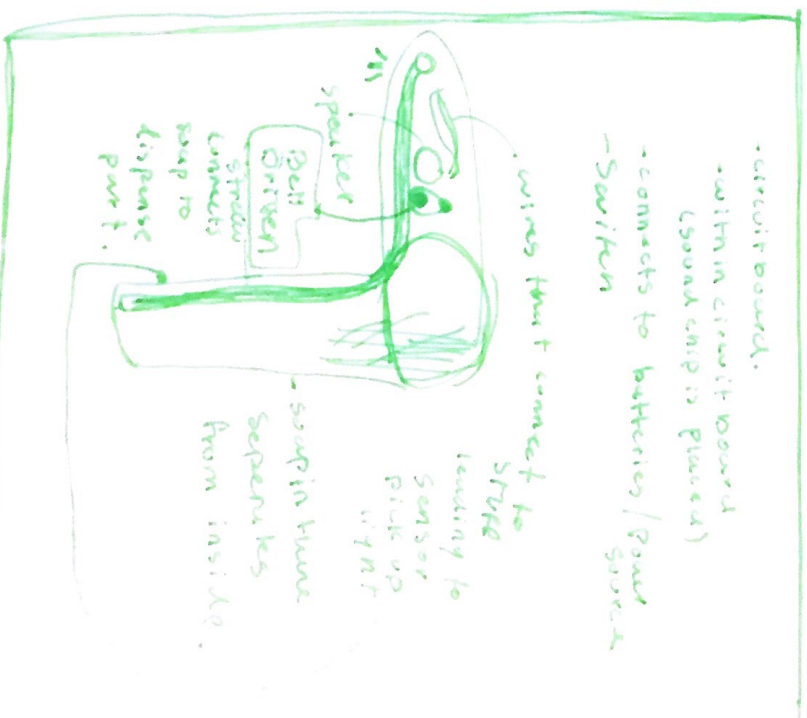


I don't know where to place it. so it's safe and works!

Solar Panel to power.
 - Arduino solar panels?
 - will it power our sensor circuit? efficiently?

PIR Motion Sensor

Maybe not every time pass if squirrels pop
 - Make sure if there is motion in detection area it pours the soap.
 - Make sure detect motion releases soap.



circuits board.
 - within circuit board (sound chip is placed)
 - connects to batteries / power source
 - Switch

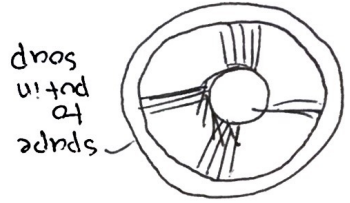
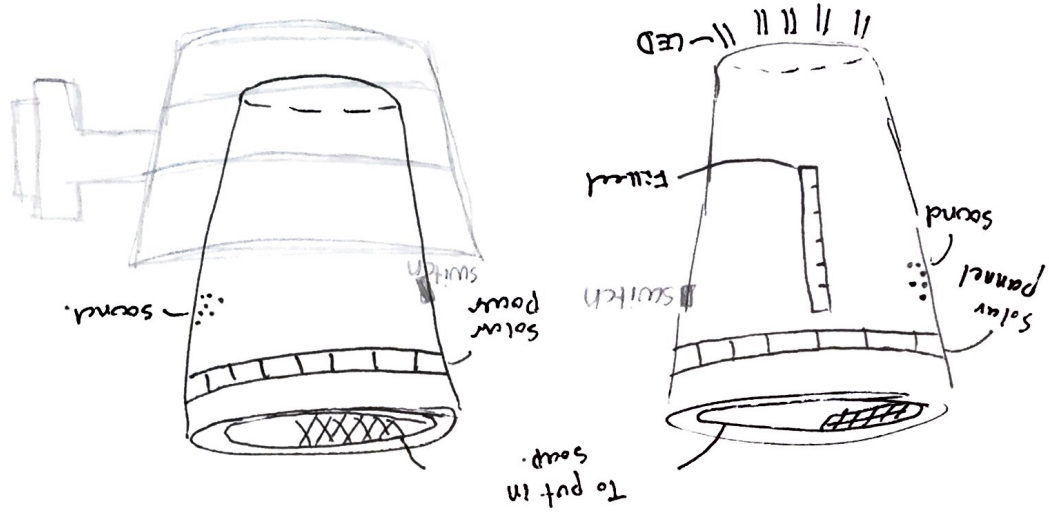
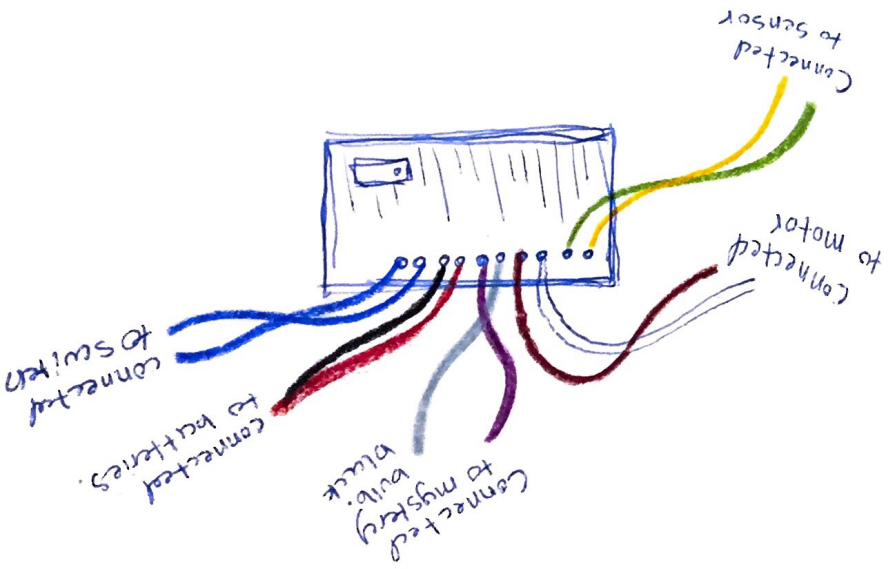
wires that connect to stroke
 leading to sensor pick up light

squirrels sense separates from inside.

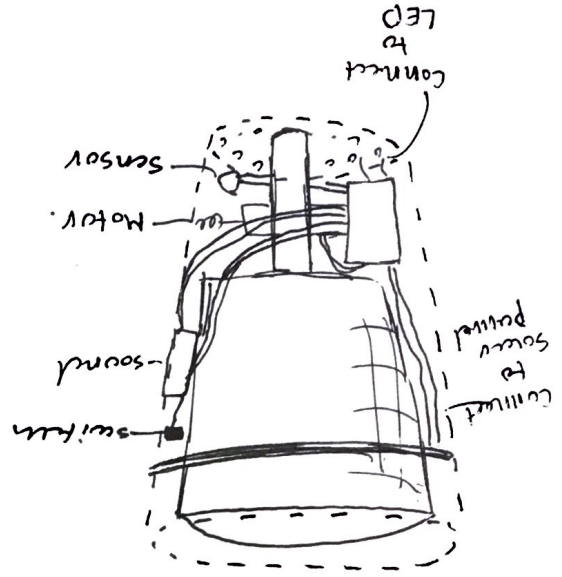
speaker
 Belt Driver
 connects soap to dispense part.

LED, want to use a RGB LED
 Turn on when soap dispenser is activated.

Solar Panel: 1 sq. ft. → 1.5 watts



W



CHUE DESIGN #1

Component:

Structural component?

Electrical Component?

Automation component?

Problem targete?

gross dirty kids
(in school)

(camera component)

Small camera

Use count, people
how many people
have used it

Solar
component
maybe?

Automation
and
mechanism
(gears)

Sensor
distance
or motion

Light sensor
power?

10cm

how attachment?

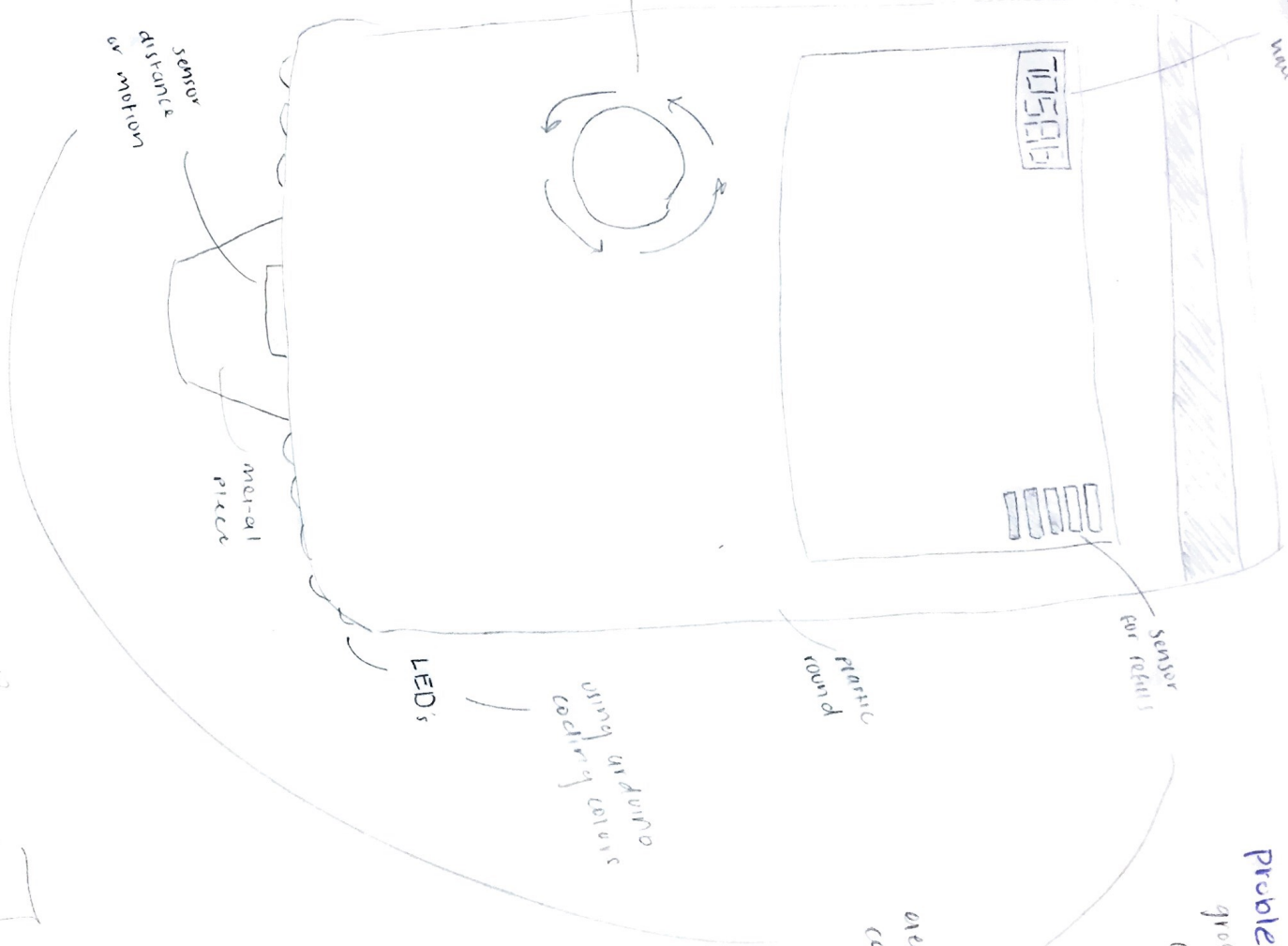
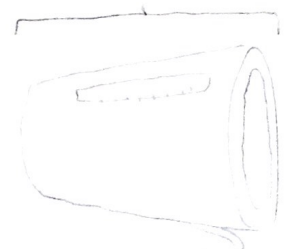
Sensor
for feet!

plastic
proud

using a servo
control colors

LED's

electrical
component



Ultrasonic Range Finder + CODE

set up - want for

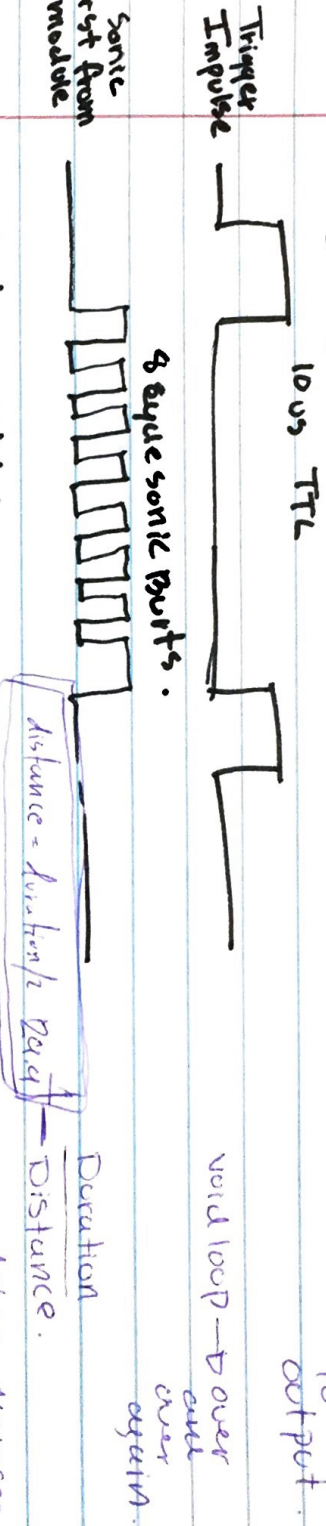
(9600)

Measures Distance.

- Emits ultrasound hits obj and hits back activating it.

Standard rate of communicate

Timing Diagram



Need to supply 10 microseconds Pulse.

Length of return signal is amt from receiving to sending

Pulse In

Reals High Low Pi

~~QUESTION~~ Copy Code we need to change some stuff.

Arduino #10 - Ultrasonic HC-SR04 Range sensor - Robotics Arduino Tutorial

EEE enthusiast

<https://youtu.be/qnrU2k1J8AU>

PIN Modes - will not change

sends volt sends more sound waves

const int TrigPin = 7; ultrasonic distance

const int echoPin = 6;

const int led2 = 12;

const int led3 = 11;

const int led4 = 10;

const int led5 = 9;

const int led6 = 8;

constant sound = 250;

constant buzzer = 3;



digital pins