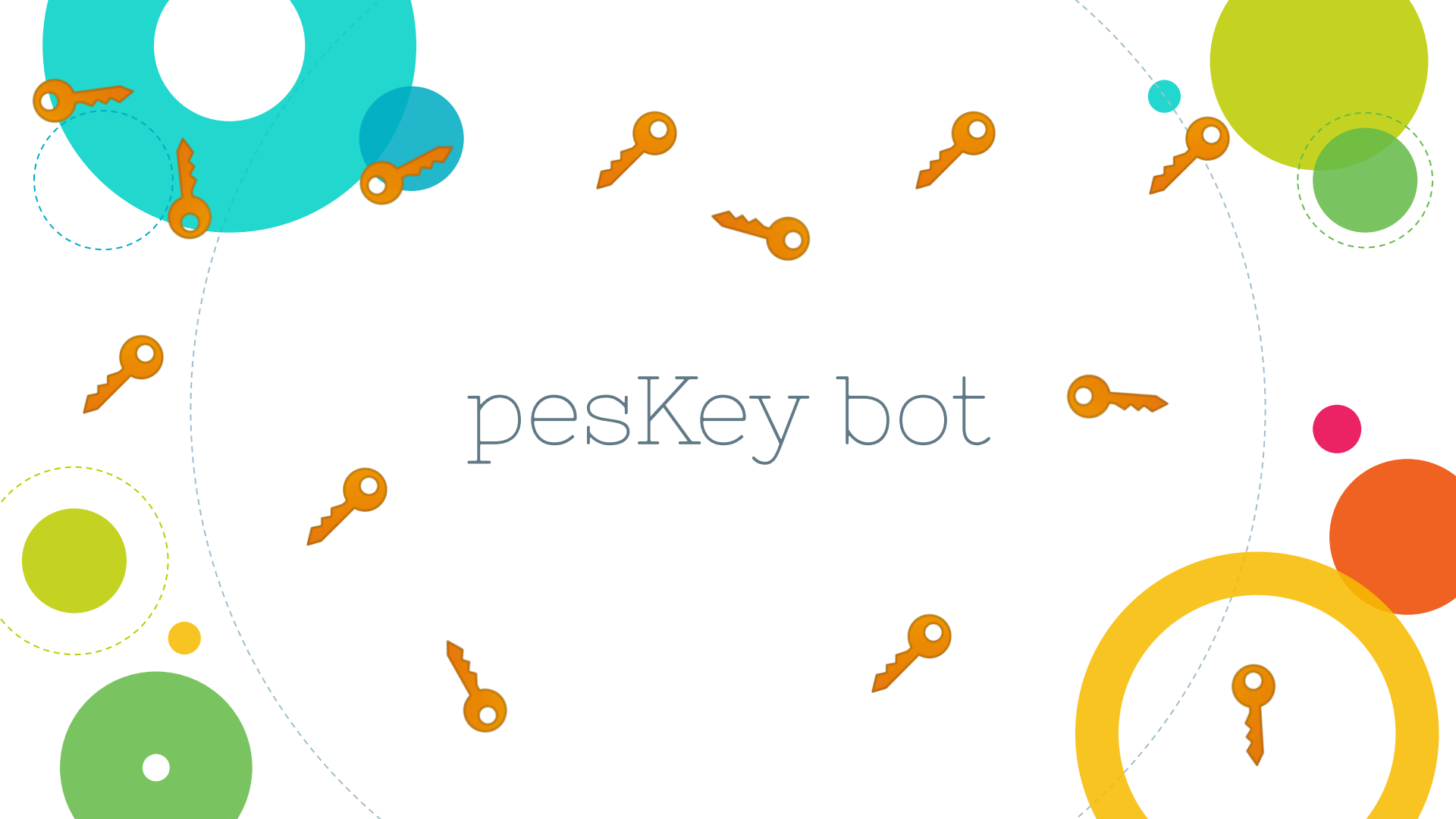
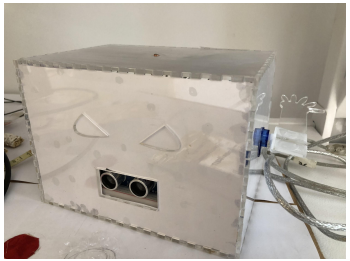

pesKey bot

How often do you....

FORGET YOUR KEYS?

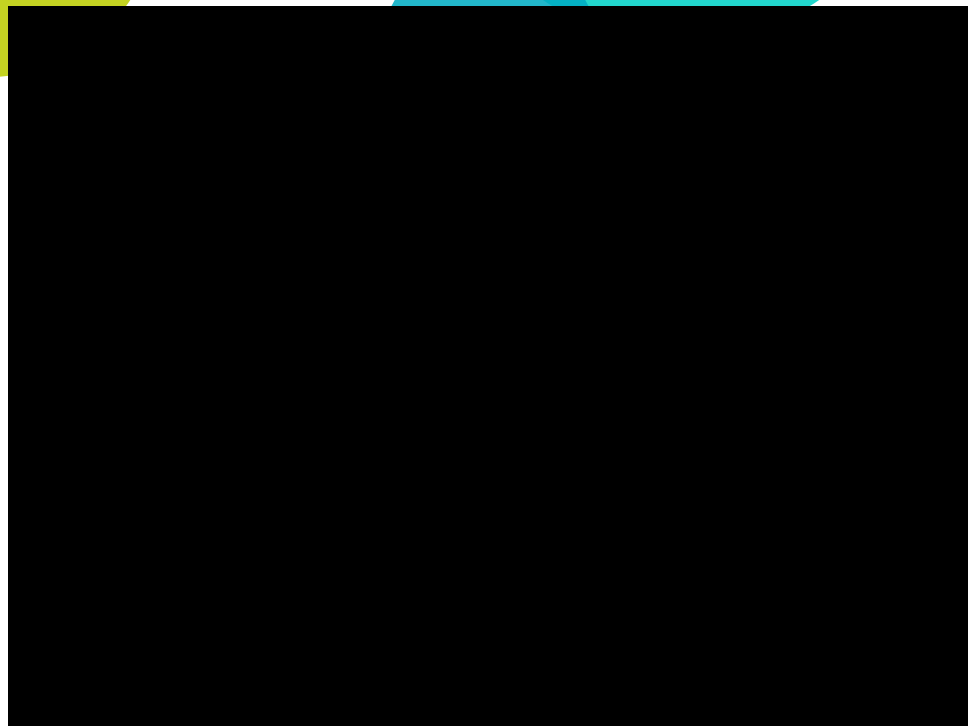
Hello!



Meet PesKey bot

1

How she works



Parts/Digital Fabrication Techniques We Used

- Ultrasonic Sensor
- Light Dependent Resistor
- LEDS
- Micro- Servo Motors
- Laser Cut Acrylic

Interaction

The receiving, processing/reflecting, and communication of information between two or more parties/objects.

Our Thought Process

Idea

Create something useful, entertaining, and interactive

Solution: animating a keyholder.

Input: distance from door

Processing: Determining if key is present

Output: Waving arms, alarm, blinking lights

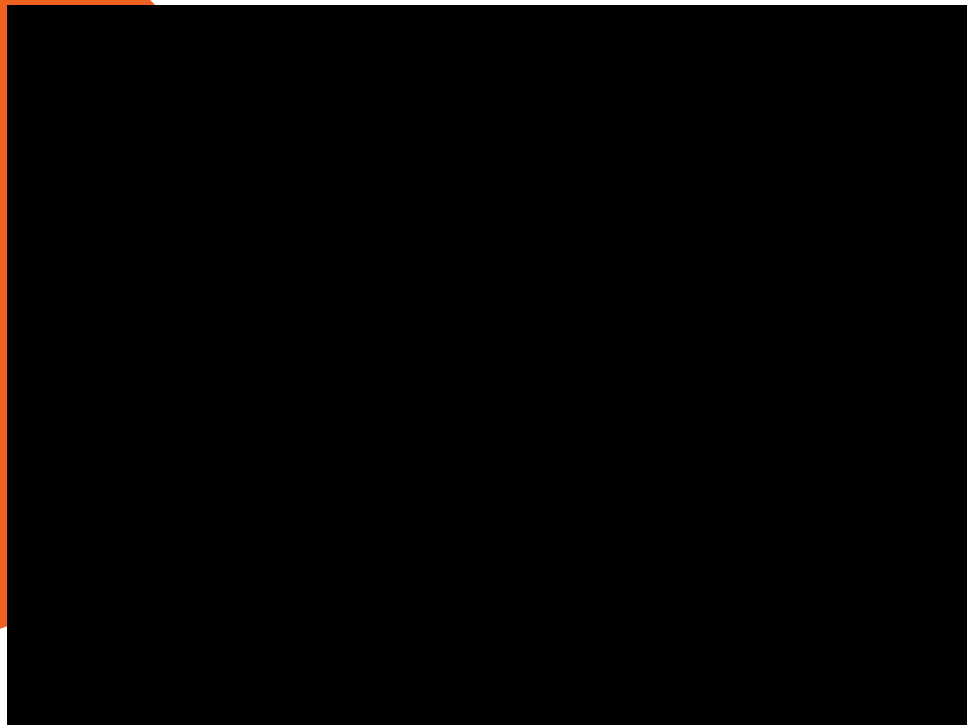
Steps

Test distance sensor, servos, speaker, ldr, leds separately

Write out logic/ pseudo code

Implement the parts together

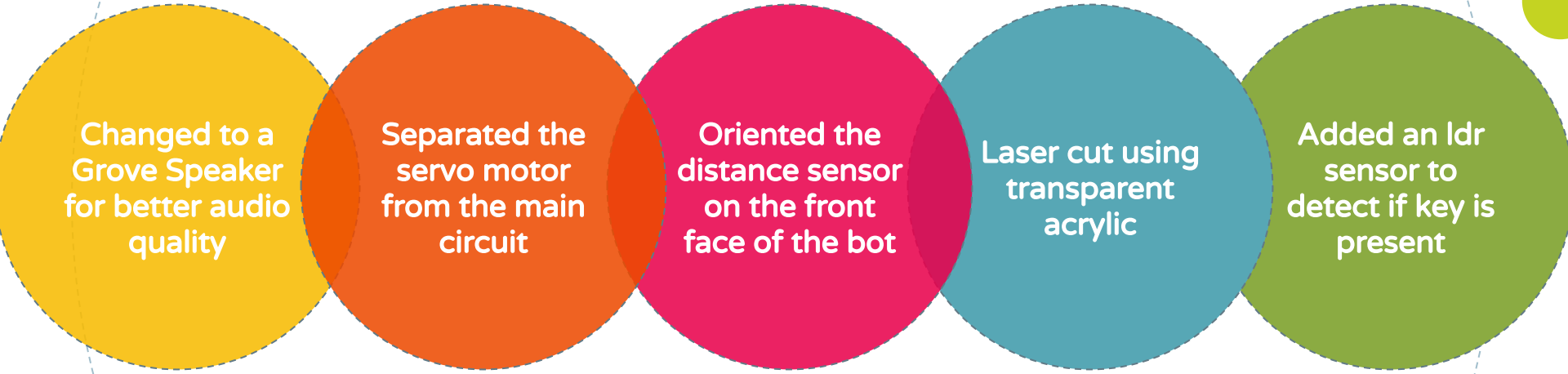
First Prototype



User Testing Feedback

- Speaker too quiet
- Arms moving too slow
- Distance sensor in wrong position
- LEDs not visible enough
- Need to add a key sensor

Changes We Made



Final Code

servoAlone2 | Arduino 1.8.9 (Windows Store 1.8.21.0)

File Edit Sketch Tools Help

servoAlone2

```
int messagePin=10;
//servo
const int pin_left_servo = 5;
const int pin_right_servo = 8;

void init_arms() {
  pinMode(pin_left_servo, OUTPUT);
  pinMode(pin_right_servo, OUTPUT);
}

// pos is -50 to 50
// duration is in millis
void set_arms(float left_pos_norm, float right_pos_norm, int duration) {
  const unsigned long min_val = 250L, max_val = 2500L;
  const unsigned long left_pulse_duration = min_val + (unsigned long)((max_val - min
  const unsigned long right_pulse_duration = min_val + (unsigned long)((max_val - mi
  const unsigned long left_dead_time = 10000L - left_pulse_duration;
  const unsigned long right_dead_time = 10000L - right_pulse_duration;
  for (int cycles = max(2, duration / 10); cycles; --cycles) {
    if (cycles % 2 == 0) {
      digitalWrite(pin_left_servo, HIGH);
      delayMicroseconds(left_pulse_duration);
      digitalWrite(pin_left_servo, LOW);
      delayMicroseconds(left_dead_time);
    } else {
```

prototype8 | Arduino 1.8.9 (Windows Store 1.8.21.0)

File Edit Sketch Tools Help

prototype8

```
//communication
int messagePin = 8;

//ultrasonic distance sensor
int trigger_pin = 3;
int echo_pin = 2;
long duration;
int distance;

//ldr
int ldrPin = A0;
//key not present value
int calibrationValue = 670;
//key on holder
int keyPresentValue = 270;
//current ldr value
int ldrValue = 0;

//grove speaker
#define SPEAKER 6
//int BassTab[] = {1911, 1702, 1516, 1431, 1275, 1136, 1012}; //bass 1~7
int BassTab[] = {1012, 1012, 1012, 1012, 1012, 1012, 1012}; //bass 1~7

//led
const int ledPin=7;
```

Thanks!

Any questions?