FACETRACKER BLE EXERCISES

CSE 590 Ubiquitous Computing | Lecture 7 | May 10

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DESIGN USE BUILD

MAKEABILITY LAB

PAUL G. ALLEN SCHOOL
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FACETRACKER BLE

DOWNLOAD OR PULL: A04-FACETRACKERBLE

https://github.com/jonfroehlich/CSE590Sp2018/tree/master/A04-FaceTrackerBLE

Modify the TARGET_BLE_DEVICE_NAME in Android

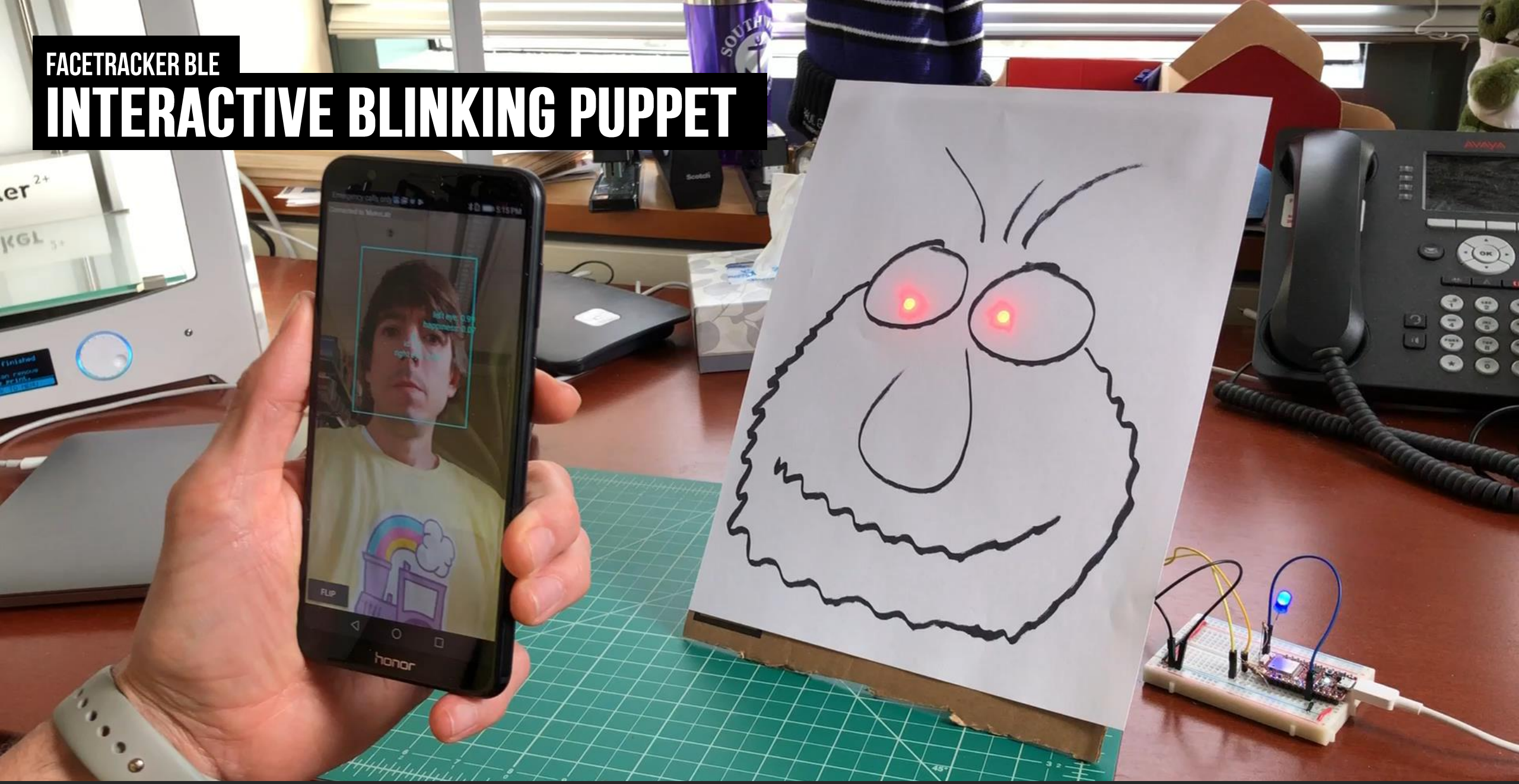
```
public class MainActivity extends AppCompatActivity implements BLEListener{

    private static final String TAG = "FaceTrackerBLE";
    private static final int RC_HANDLE_GMS = 9001;
    private static final int CAMERA_PREVIEW_WIDTH = 640;
    private static final int CAMERA_PREVIEW_HEIGHT = 480;

    // permission request codes need to be < 256
    private static final int RC_HANDLE_CAMERA_PERM = 2;

    private CameraSource mCameraSource = null;

    private CameraSourcePreview mPreview;
    private GraphicOverlay mGraphicOverlay;

    private boolean mIsFrontFacing = true;

    // Bluetooth stuff
    private BLEDevice mBLEDevice;

    // TODO: Define your device name and the length of the name. For your assignment, do not use the
    // default name or you will not be able to discriminate your board from everyone else's board.
    // Note the device name and the length should be consistent with the ones defined in the Duo sketch
    private final String TARGET_BLE_DEVICE_NAME = "MakeLab";
```

Modify the BLE_SHORT_NAME

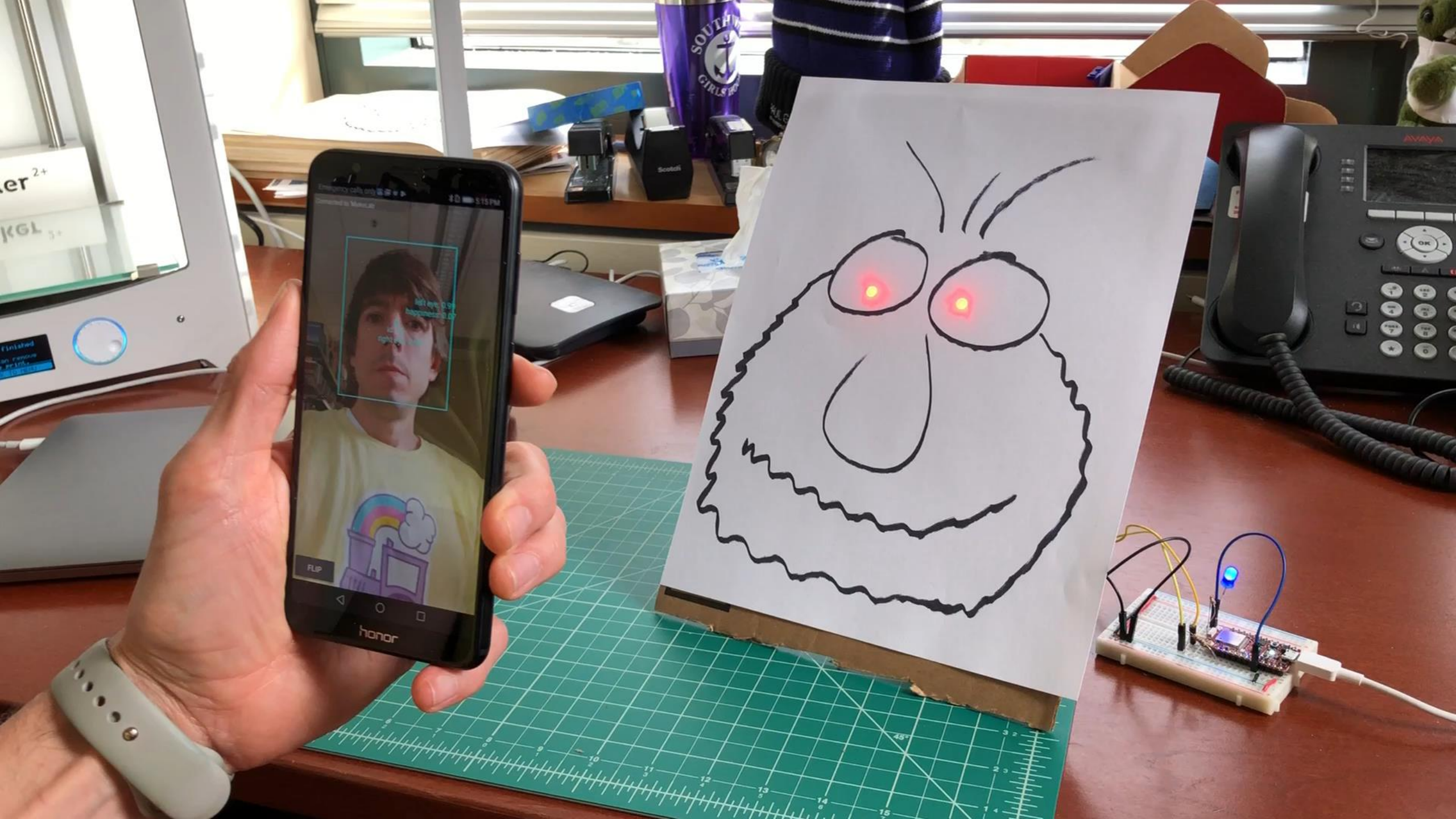

```
#define RECEIVE_MAX_LEN  5 // TODO: change this based on how much data you are sending from Android
#define SEND_MAX_LEN     3

// Must be an integer between 1 and 9 and and must also be set to len(BLE_SHORT_NAME) + 1
#define BLE_SHORT_NAME_LEN 8

// The number of chars should be BLE_SHORT_NAME_LEN - 1. So, for example, if your BLE_SHORT_NAME was 'J', 'o', 'n'
// then BLE_SHORT_NAME_LEN should be 4. If 'M','a','k','e','L','a','b' then BLE_SHORT_NAME_LEN should be 8
// TODO: you must change this name. Otherwise, you will not be able to differentiate your RedBear Duo BLE
// device from everyone else's device in class.
#define BLE_SHORT_NAME 'M','a','k','e','L','a','b'

/* Define the pins on the Duo board
```

FACETRACKER BLE

INTERACTIVE BLINKING PUPPET



Video source: Jon Froehlich (shot by Liang He)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FACETRACKER BLE

CREATE AN INTERACTIVE BLINKING PUPPET

Draw a puppet on paper & put in two LEDs for the eyes

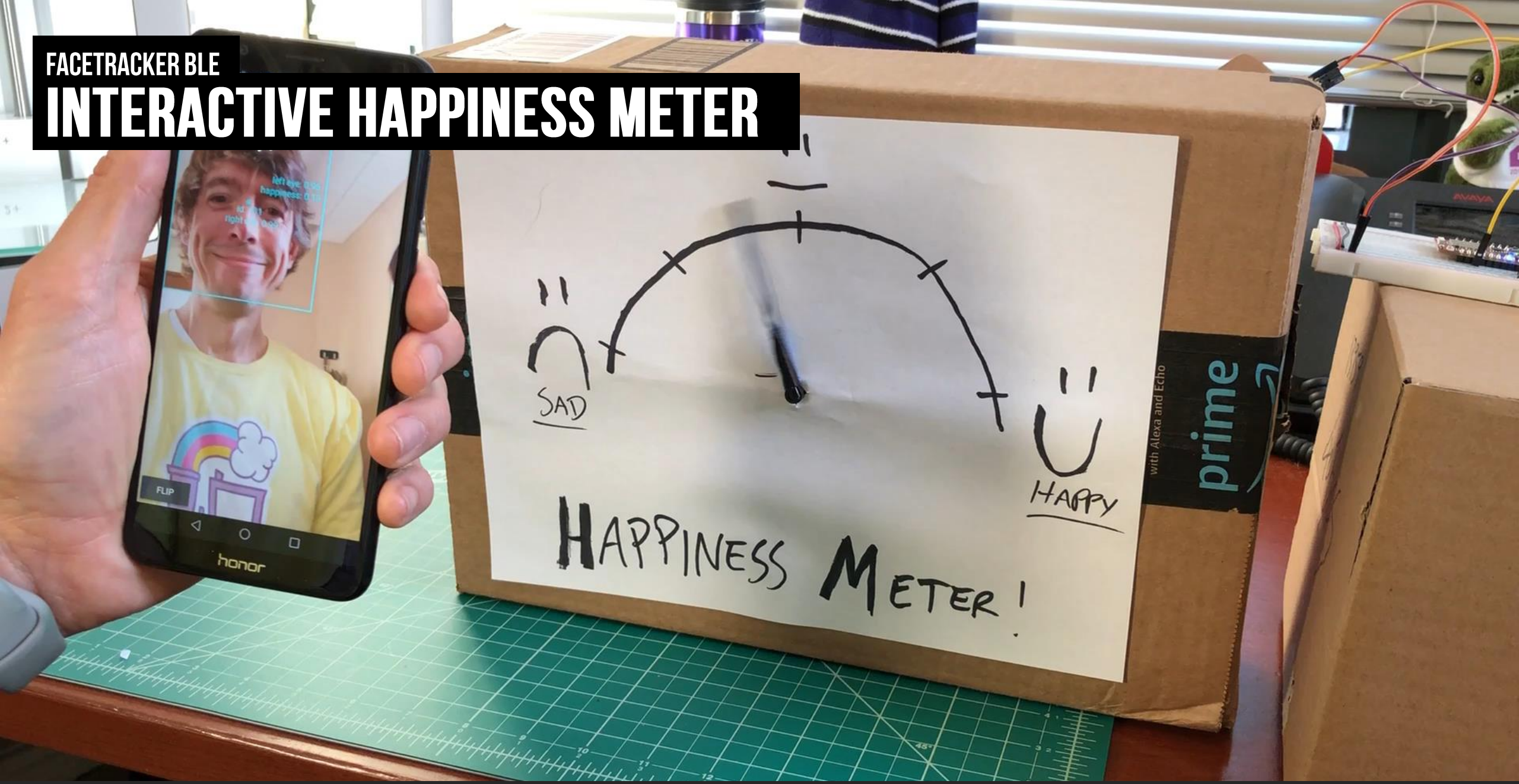
The LEDs should mimic your “blinks” & “winks” using Android face tracking

You will use the Android and Arduino skeleton code for A4:
https://github.com/jonfroehlich/CSE590Sp2018/tree/master/A04-FaceTrackerBLE

(Optional) If you have time, add in some smoothing as the blinking detector is a bit noisy.

FACETRACKER BLE

INTERACTIVE HAPPINESS METER



Video source: Jon Froehlich (shot by Liang He)


Emergency calls only
6:23 PM
FLIP
honor
SAD
HAPPY
HAPPINESS METER!
with Alexa and Echo
prime

FACETRACKER BLE

CREATE AN INTERACTIVE HAPPINESS METER

Design a happiness meter with paper

Update the provided FaceTrackerBLE code to transmit the happiness inference score to Arduino

Use the inference score to set the rotation angle of the servo motor

Example Servo code on github: L06-Arduino/RedBearDuoServoSweep

See: https://learn.adafruit.com/adafruit-arduino-lesson-14-servo-motors

Again, use the Android and Arduino skeleton code for A4:
https://github.com/jonfroehlich/CSE590Sp2018/tree/master/A04-FaceTrackerBLE

(Optional) If you have time, add in some smoothing as the happiness detector is fairly accurate but noisy ☺