The Pokemon are Happy in Pokepark

Oh no, the Pokemon escaped!

Let’s go round up the Pokemon!

Some Pokemon are hard to catch!

So we will need some tools
And maybe Java, Raspberries, and Pie!

Raspberry Pi

Pis are Affordable

$35

A Cake

Legos (but just a small set)

1 Box of Diapers

Electronic Safety!

- Unplug from wall before wiring
- Get rid of static by touching a metal surface
- Don't touch exposed wires/metal
- Never remove/insert SD Card while power is on

Assembly Demonstration

Running the ZombieTime Application

Change directory to the project folder
> cd PokeTime

Run the build script
> sudo ant

Time to Assemble

GAME OVER

Let’s use a Pokeball

But all we can afford… is a PokeButton

$$$$$  $
How Breadboards Work

Wiring a Button
Attacking when you press the button

```java
final GpioPinDigitalInput myButton =
    gpio.provisionDigitalInputPin(RaspiPin.GPIO_07,
    PinPullResistance.PULL_UP);
myButton.addListener(new GpioPinListenerDigital() {
    @Override
    public void handleGpioPinDigitalStateChangeEvent
        (GpioPinDigitalStateChangeEvent event) {
        boolean buttonPressed = event.getState().isLow();
        if (buttonPressed) Main.display("Button Pressed");
        Main.attack(3);
    }
});
```

HP 30

Flee

HP 29

Munchlax

Hacking the Code

Run the nano text editor:

> `nano src/sample/SensorFactory.java`

Save your changes:

> `Control-O Enter`

Exit Nano:

> `Control-X`

Delete old files (if timestamps are bad):

> `sudo ant clean`

Compile/Run:

> `sudo ant`

Main.attack(3);

Time to Wire Your Button!

Hey... There's a button here

Pokemon get sleepy at night...

Wiring a Light Sensor

Making it Night Using a Light Sensor

```java
Tsl2561 lightSensor = new Tsl2561(device);
Timeline lightTimeline = new Timeline(
    new KeyFrame(Duration.seconds(10), actionEvent -> {
        double lux = lightSensor.getLux();
        Main.display("lux = " + lux);
        if (lux < 3) {
            night.setValue(true);
        } else {
            night.setValue(false);
        }
    }));
```

Hurry Up and Make it Night!

Some Pokemon don’t sleep at night!

Accelerometers let you know orientation

- **X** = Left and Right
- **Y** = Forward and Backward
- **Z** = Up and Down

Wiring an Accelerometer

Create an earthquake using an accelerometer

```
ADXL345 gyro = new ADXL345(bus);
gyro.init(gyro.X, 4);
lastGyroX = gyro.X.getRawValue();
Timeline accelerometerTimeline = new Timeline(
    new KeyFrame(Duration.seconds(1), actionEvent -> {
        float x = gyro.X.getRawValue();
        if (!Main.earthquake.getValue()) {
            if (Math.abs(x - lastGyroX) > 2000) {
                System.out.println("Earthquake!");
                Main.earthquake();
            }
        }
    });
    lastGyroX = x;
));
```

Time to catch the stragglers!

YOU WIN!!!
Thanks for Attending the Workshop!

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