Scratch 2.0
Using a Webcam

v1.0 created by @pmccullagh 14/09/2014 for Malahide CoderDojo

Notes

- Using the webcam requires Scratch 2.0 (either online or offline)
- You need to have a webcam built in to or connected to your laptop

Introduction

The following blocks can be used to interact with the webcam (all available in the "Sensing" blocks):

`turn video on`

Turns the camera on or off

`set video transparency to 50 %`

Allows you to make the video picture lighter or darker

`video motion on this sprite`

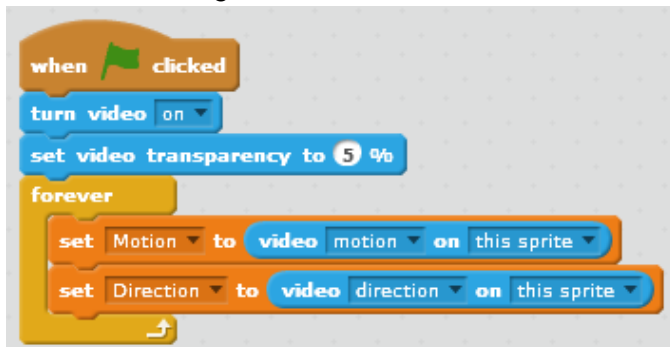Shows how much the picture is changing under the selected sprite

`video direction on this sprite`

Shows the direction of the movement under the sprite

Project 1
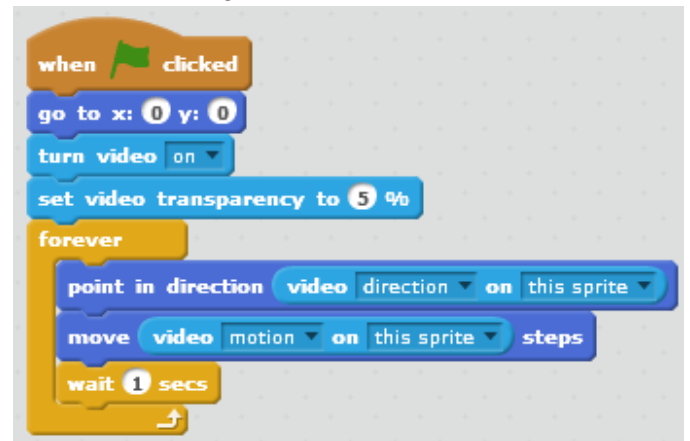
Create a new Project
Create two new Variables:

`☑ Direction`
`☑ Motion`

Add the following code:

```
when [flag] clicked
turn video on
set video transparency to 5 %
forever
    set Motion to (video motion on this sprite)
    set Direction to (video direction on this sprite)
```

Try it out so that you can see how motion and direction work!

Project 2

Create a new Project

Add the following code:

```
when [flag] clicked
go to x: 0 y: 0
turn video on
set video transparency to 5 %
forever
    point in direction (video direction on this sprite)
    move (video motion on this sprite) steps
    wait 1 secs
```
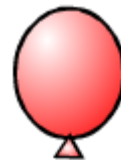
Try it out!

Project 3

Create a new Project
Create a sprite that looks like a balloon (hint: you may want to do this using "vector graphics"). Here's an example:

Create a variable ("for this sprite only") called "Wind":

`☐ Wind`

This code makes the balloon fall (moves left or right by the wind):

```
when [flag] clicked
set x to 0
set y to 180
forever
    change y by -1
    change x by (Wind)
```

This code changes the wind direction randomly:

This code moves the balloon up when you wave your hand over it:

Try it out! See if you can keep the balloon from falling all of the way down.

Change it

Now change Program 3 by duplicating the balloon sprite so that you have more balloons to look after.

Change it again

Change the code as follows:

Now if you make too much movement over the balloon you will burst it!

Suggestion

Record your own popping sound and use it instead of the "hand clap" sound

Game Idea

Create a game where you have to move a basket at the bottom of the screen left or right to try to catch falling objects. The webcam element is that you have to move your hand over one of two winches (one at either side of a rope across the bottom of the screen) which move the basket in the appropriate direction.

You'll need four sprites:
* One for the basket
* One for the rope
* One for each of the winches

Here's how the basket and the right-hand winch might look (I'm sure you can do something better than this):

Here is some sample code for the right hand winch: