

Pan tracking webcam using OpenCV and Arduino

Table of Contents

1 Overview

1.1 OpenCV

1.2 Arduino

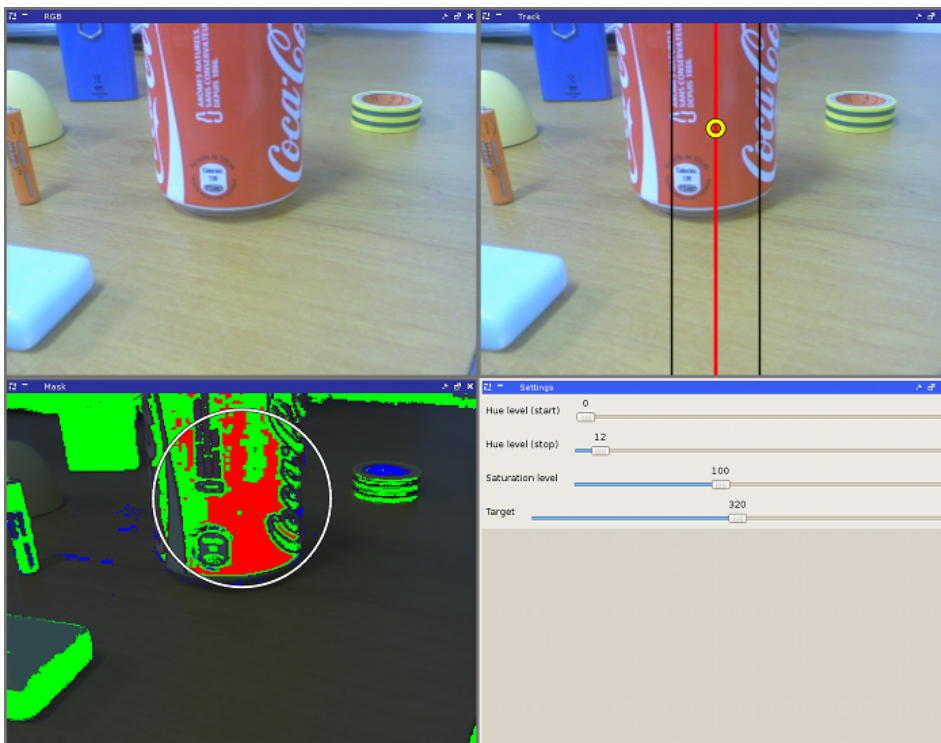
1.3 Example

2 Source code

1. Overview

1.1. OpenCV

The various OpenCV windows displayed while the program is running:

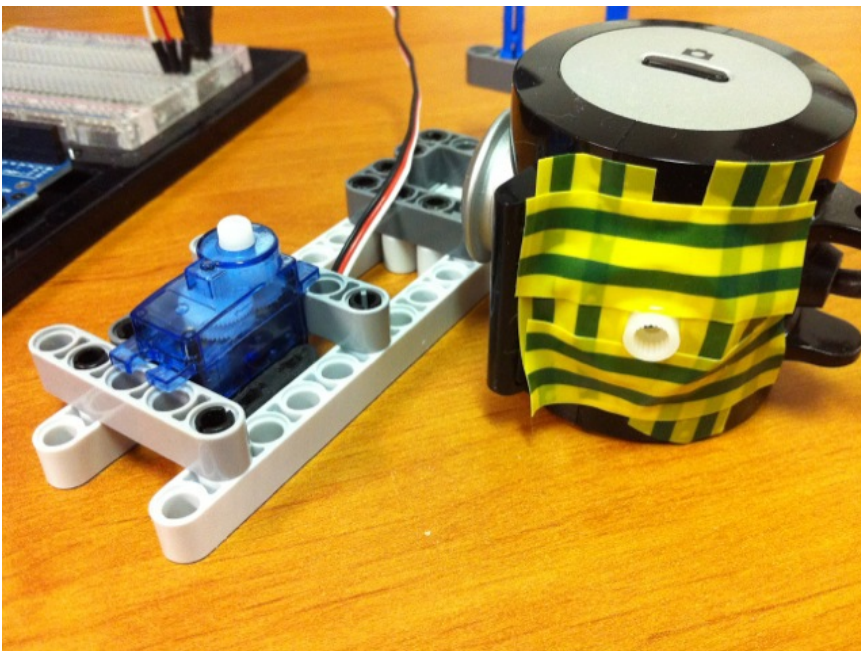
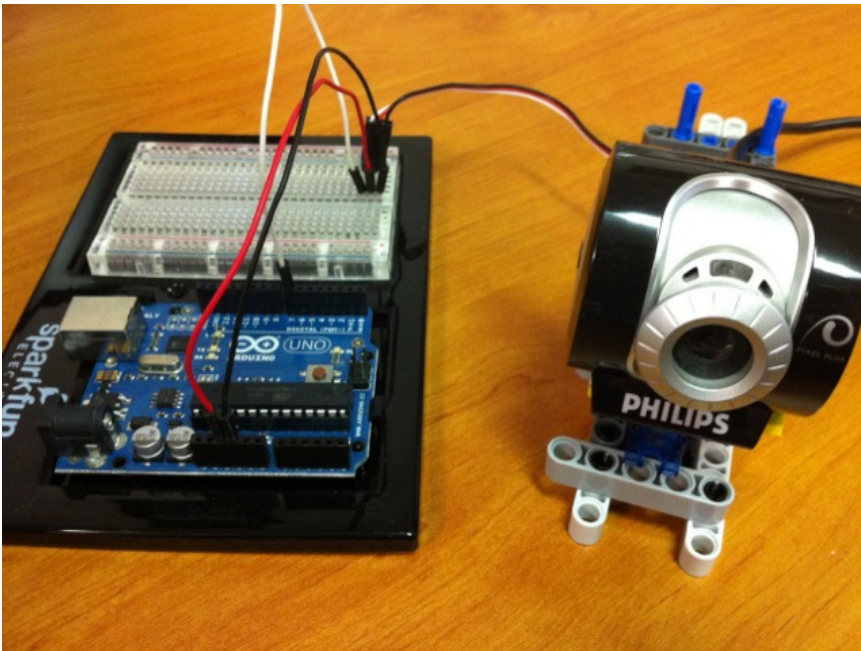


(That's Linux, using the Sawfish window manager with `mxflat` theme.)

1.2. Arduino

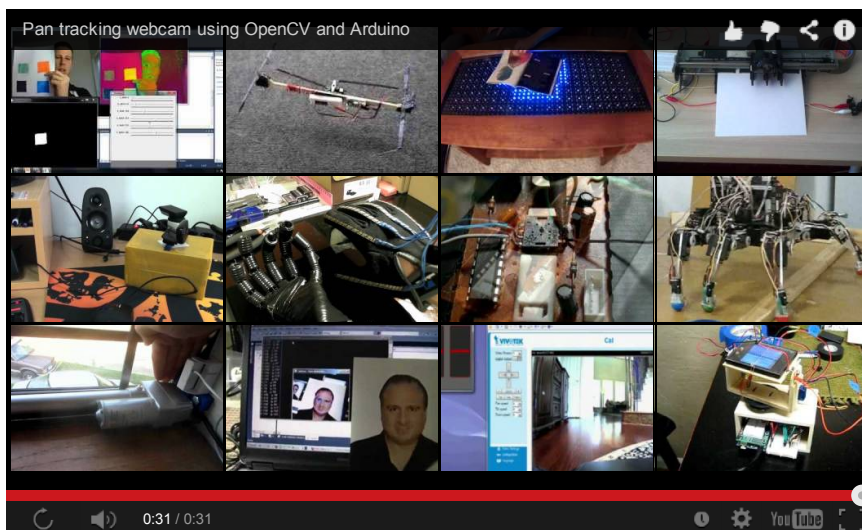
I'm using a Philips SPC900NC webcam (from which I removed the part used to fix it on a monitor). I used adhesive tape to bind the motor support to the webcam.

The Arduino board and the motor come from the Arduino kit prepared by Sparkfun. See <http://www.sparkfun.com/products/10173>.



1.3. Example

A video showing how the webcam is controlled accordingly to the object to track:



(You need Javascript or a HTML5 capable browser to play the video.)

2. Source code

There are 2 programs:

1. the OpenCV program which track the object from the webcam and send orders to Arduino to position the servo motor. You can download it from <http://doc.tuxee.net/tracking.cc>.
2. the Arduino program which receive orders from the OpenCV program. You can download it from <http://doc.tuxee.net/tracking-arduino.cc>.

The protocol is very simple between OpenCV and Arduino: the program transmit one integer per line through the serial connection (using the USB connection or a RS232 port). Each integers gives the position (in microseconds) of the servo motor to set.