

Re: Video motion tracking and speed estimation

Source: <http://sci.tech-archive.net/Archive/sci.electronics.design/2009-03/msg01995.html>

- *From:* "Anthony Fremont" <nobody@xxxxxxxxxxxx>
 - *Date:* Sun, 15 Mar 2009 14:10:56 -0500
-

Jan Panteltje wrote:

On a sunny day (Sun, 15 Mar 2009 13:31:41 -0500) it happened "Anthony Fremont" <nobody@xxxxxxxxxxxx> wrote in
<KKSdnZdqU7wT1CDUnZ2dnUVZ_uqdnZ2d@xxxxxxxxxxxx>:

Jan Panteltje wrote:

On a sunny day (Sun, 15 Mar 2009 10:59:55 -0500) it happened
"Anthony Fremont" <nobody@xxxxxxxxxxxx> wrote in
<aL-dnfRulbJguCDUnZ2dnUVZ_sTinZ2d@xxxxxxxxxxxx>:

Jan Panteltje wrote:

On a sunny day (Sun, 15
Mar 2009 09:51:12 -0500)
it happened
"Anthony Fremont"
<nobody@xxxxxxxxxxxx>
wrote in
<Iv-dnZWSocN_iCDUnZ2dnUVZ_q7inZ2d@xxxxxxxxxxxx>:

Hello all,

I posted a
short video
on ABSE
showing
something
I've been
tinkering
with over
the last
couple of
weeks. I

Re: Video motion tracking and speed estimation

wanted to
learn
a little
about the
capturing
data from
the video
for Linux
(V4L2)
interface,
and one
thing led to
another. I'm
using a
cheap
BT878
capture card
and a really
cheap
camera.

Anyone
have any
tips on
improving
the results
or know of
a good
source of
info on the
internet?
Google
likes to
return links
to
patent
claims on
anything
related to
the subject.

I am sort of interested, but
do you have any other site
then a
newsgroup that is not
available?

Here is a link to a folder on photobucket.
Sorry about the adds,

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but it's free.

<http://s55.photobucket.com/albums/g143/afremont/capture/>

There are 10 still images and a couple of videos. One of the videos is a much earlier trial.

Very nice.

The speed measurement depends on the distance I suppose?

How do you get the distance?

Could perhaps be done with 2 cameras, the parallax would tell you

something about it.

It's really just an estimate. It's reasonably accurate, but still just an estimate. The true way to tell how fast they are going is to watch how long it takes to cover a known distance (like you didn't already know that). It's true that I'm giving the further cars a bit of a break on the speed measurement, but I'm far enough back and the street is narrow enough that the distance variation is very limited in range so I don't factor it in.

I basically measure how fast the vertical yellow segments progress thru the frame. Each pixel moved per frame is approximately 1.8MPH. Frames arrive 30 times per second; each is timestamped to the uS by the capture card's device driver.

Neat.

How do you get the motion vector?

I have some motion detection here,

<http://panteltje.com/panteltje/mcamip/>

but I just subtract 2 subsequent frames,

and the amount of difference tells me is something changed.

Do you calculate a motion vector?

I use subtraction like you do, but I have a couple of different ways of doing it. Each has its strengths and weaknesses. I find "blobs" of change and draw a box around the largest "blob". The rate of change of the X coordinate of the vertical line segments is the motion vector.