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#!/usr/bin/python
# motion-detect.py

import io
import os
import picamera
import time
from datetime import datetime
from PIL import Image

camera = picamera.PiCamera()
difference = 20
pixels = 100

width = 1280
height = 960

def compare():
    camera.resolution = (100, 75)
    stream = io.BytesIO()
    camera.capture(stream, format = 'bmp')
    stream.seek(0)
    im = Image.open(stream)
    buffer = im.load()
    stream.close()
    return im, buffer

def newimage(width, height):
    time = datetime.now()
    filename = "motion-%04d%02d%02d-%02d%02d%02d.jpg" % (time.year, time.month,
time.day, time.hour, time.minute, time.second)
    camera.resolution = (width, height)
    camera.capture(filename)
    print "Captured %s" % filename

image1, buffer1 = compare()

timestamp = time.time()

while (True):
    image2, buffer2 = compare()

    changedpixels = 0
    for x in xrange(0,100):
        for y in xrange(0,75):
            pixdiff = abs(buffer1[x,y][1] - buffer2[x,y][1])
            if pixdiff > difference:
                changedpixels += 1

    if changedpixels > pixels:
        timestamp = time.time()
        newimage(width, height)

    image1 = image2
    buffer = buffer2

```