constant PIR false alerts

forum.mysensors.org/topic/4644/constant-pir-false-alerts/3

mvader August 25, 2016

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- I'm using over a dozen HC-SR501 motion sensors in my house
  I am using the 3v alternative hook up method.
  several of my sensors constantly TRIP even when no motion. even if i put them in a dark room and close the door.
  they trip and after the hardware timeout, they reset and then trip again.
  i have probably 8 or 9 that work fine. and then 4 or 5 that do this constant tripping.
  is this just a result of cheap ebay hardware. or is there something else i'm missing?
  anyone have this experience? suggestions on how to resolve?

- @mvader how do you create the 3v supply?
  These sensors are very sensitive to noise on the power supply.

- @Yveaux said:

  > @mvader how do you create the 3v supply?
  > These sensors are very sensitive to noise on the power supply.

  2 AA batteries
  I'm using them with the sensebender boards.

- @mvader then it could very well be that the voltage is too low for the pir sensor.
  I use 3xAA batteries to power pirs without any false triggers.

- I put new batteries in and that didn't help.
  I do have at least 8 others working fine on AA some that have been in service for 6-8 months on the same set and are fine.
  so i'm not sure it's a voltage thing, unless this specific PIR was overly sensitive.
  looks like it happens 5 seconds after it's reset, it trips again.
  I already replace this PIR once, i'm going to try a 2nd time and see if it's just a flaky PIR
  28 8/25/2016 11:55:29 RX 14 - Basement Washroom 4 - S_LIGHT_LEVEL C_SET NO V_LIGHT_LEVEL 36
  29 8/25/2016 11:55:41 RX 14 - Basement Washroom 3 - S_MOTION C_SET NO V_TRIPPED 1
  30 8/25/2016 11:55:41 RX 14 - Basement Washroom 1 - S_TEMP C_SET NO V_TEMP 74.5
  31 8/25/2016 11:55:41 RX 14 - Basement Washroom 2 - S_HUM C_SET NO V_HUM 52
  32 8/25/2016 11:55:41 RX 14 - Basement Washroom 4 - S_LIGHT_LEVEL C_SET NO V_LIGHT_LEVEL 72
  48 8/25/2016 11:57:21 RX 14 - Basement Washroom 3 - S_MOTION C_SET NO V_TRIPPED 0
  49 8/25/2016 11:57:21 RX 14 - Basement Washroom 4 - S_LIGHT_LEVEL C_SET NO V_LIGHT_LEVEL 37
  50 8/25/2016 11:57:27 RX 14 - Basement Washroom 3 - S_MOTION C_SET NO V_TRIPPED 1
  51 8/25/2016 11:57:27 RX 14 - Basement Washroom 1 - S_TEMP C_SET NO V_TEMP 74.6
  52 8/25/2016 11:57:27 RX 14 - Basement Washroom 2 - S_HUM C_SET NO V_HUM 51
  62 8/25/2016 11:59:08 RX 14 - Basement Washroom 3 - S_MOTION C_SET NO V_TRIPPED 0
  63 8/25/2016 11:59:14 RX 14 - Basement Washroom 3 - S_MOTION C_SET NO V_TRIPPED 1
  64 8/25/2016 11:59:14 RX 14 - Basement Washroom 4 - S_LIGHT_LEVEL C_SET NO V_LIGHT_LEVEL 37

- And the winner appears to be flaky sensor.
  I replaced for a 3rd time and it seems to be working correctly now.

  for me these PIR's fall in to 1 of 3 categories.

  1. works correctly
  2. only works when time out is turned all the way down to 0 (so it constantly sets and resets, any amount higher and it doesn't trip at all)
  3. hardware timeout works, but sensor trips right after it's un-set

  I guess i'm glad i bought these in bulk.. i will replace the other 3 or 4 that are not working as they should.

- @mvader I'm still looking for a good alternative for these cheap PIR sensors.

  At the moment I have discovered:

  - The flickering on/off is caused by an error in the circuit, which short circuits the PIR sensor. As a result the PIR sensors reboots and for some kind of reason the developper of the chip decided that the PIR sensors reports On during startup. Very annoying, the only solution I've found for this is not powering the PIR from the Arduino.
  - The PIR sensor stalls your sketch. For some kind or reason the Arduino stalls when you try to read the value of the PIR. It doesn't return an error it just stalls you Arduino. I've tried a watchdog for this, but the Arduino needs to be turned off and on otherwise it stalls again when the watch dog goes off.

  I've tried decoupling both the Arduino and the PIR with an opto coupler. But the PIR sensor I have has an output just a hair under 2V which is too low for the opto couplers I have. So a no go.

  My final solution, which I still have to try is to connect a transistor between the PIR and the Arduino. Maybe a BC548b, and have that pull down the Arduino PIN whenever the PIR sensors data pin goes HIGH.

  The strange thing is that the motion sensor works perfectly if I only attach the PIR sensor to an Arduino. Domoticz with no more extra's. When I add to a more complex node, the PIR sensor causes my node to stall.

  I'll keep you informed for my transistor test.

- @TheoL glad to hear it's not just me having problems (better in numbers i guess)
how are you powering this? are you using the 3v method or the default 5?
I was afraid since i'm using the 3v that was the problem. but i have 8 (9 now) that work perfectly with 3v method
i have them on sensbender boards with temp, humidity, PIR and LDR
my "test" node has been powered for months without issue on AA
it seems to be luck the draw with these.
i had several of them, work fine if the time out pot was turned to 0, but then you have constant trip and resets. not what i want.
the odd thing was, if you adjust even slightly higher for a longer timeout, the PIR would not respond at all.

  and then as i mentioned the other type, where it trip's with in a few seconds after being un-tripped.
watching myscontroller, i have 2 others doing this, and 8 new PIR's left.. i'm just going to hope i have 2 good working ones out of the 8 i have left..
the good news is they are not expensive.. so if i have to buy another 10 to get 2 good i will. they seem to be great once you get them going.

- @mvader Yeah you got to have some luck with them. I have one node on a Nano, in which the pir is powered directly from the Nano. On that Node is also a relay, a DS18B20 and a door switch. That node is stable, with no false alerts.

  I wanted to add another PIR to my doorbell node, and powered that from the same adapter from which I also power the arduino. But trying other PIR sensors doesn't help either. Powering the PIR from the adapter and not the Arduino seems to make the circuit stable. But whenever I connect the PIR to the Arduino it stalls the node. Some times directly, sometimes after 4 or 6 hours. But I have no luck so far in making this work.

  No I could try this one 

. But it's tripple the price. So I'm still trying to find solutions.

  Guess I still have to learn a lot more about electronics

- @TheoL almost all pir sensors at a reasonable price I've seen use the biss0001 chip. As long as a module uses this chip (assuming they all have the same quality and China does not make fake Chinese chips) the results regarding stability and sensitivity for power supply will be comparable.

- 7 months later

@TheoL kube.ch produce high-quality ceramic PIR sensors. They cost less than 10 euro. They work well (I develop and sell simulators for PIR sensors from $1 to ... . I know principle of operating) Just, use good sensors and forget of problems. Cheap sensors give cheap quality. If you want a lithium tantalate single crystal PIR sensor for instrumentation, go to silverlight.ch Be ready to pay $150, but you will get a "porshe" PIR. I have samples from these manufacturers. LT sensors for instruments are magic! There are a number of other manufacturers, but most of them don't sell their products to private persons (reasons are obvious)

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No, it does not recover. The Problem is not easy to debug. I now want to build a serial gateway. With that, I am more flexible to test. Maybe to run MySensors on a second raspberry pi with a standard Home Assistant HASS-Os image. Or I check the MySensors network with MyController. At this moment i run the whole system on 64 Bit raspbian, with HA in docker, which is a little bit experimental and i had to fix some lines in the ethernet gateway to compile it for 64 bit. So this is experimental, too.

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Sep 3, 2024, 5:58 PM

I've found that: char *protocolMyMessage2Serial(const MyMessage &message) { (void)snprintf_P(_fmtBuffer, (uint8_t)MY_GATEWAY_MAX_SEND_LENGTH, PSTR("%" PRIu8 ";%" PRIu8 ";%" PRIu8 ";%" PRIu8 ";%" PRIu8 ";%s\n"), message.getSender(), message.getSensor(), message.getCommand(), message.isEcho(), message.getType(), message.getString(_convBuffer)); return _fmtBuffer; } We put in the print "message.getEcho()", but this isn't echoed message. I think we should put "message.getRequestEcho()" here.

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