**연구 내용 : 6축센서(MPU-6050) 를 I2C로 라즈베리파이에 연결**

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<i2c 설정하는 법>

1. raspi-config 에서 i2c를 enable

2. sudo apt-get install python-smbus

3. sudo apt-get install i2c-tools

4. sudo vi /etc/modules 에서

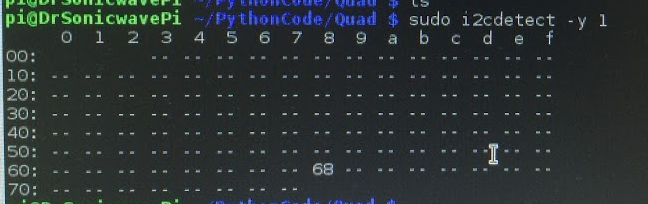
i2c-bcm2708

i2c-dev

두줄 추가 후 재부팅

5. sudo i2cdetect –y 1 (raspberry pi 1 의 경우, 0)

그러면 아래 사진처럼 확인됨.



<MPU-6050 6축센서와 라즈베리파이의 연결>

사진 추가. 핀연결

동영상 첨부

코드추가. 코드링크 <http://gongnorina.tistory.com/77>

import smbus

import math

# Power management registers

power\_mgmt\_1 = 0x6b

power\_mgmt\_2 = 0x6c

def read\_byte(adr):

    return bus.read\_byte\_data(address, adr)

def read\_word(adr):

    high = bus.read\_byte\_data(address, adr)

    low = bus.read\_byte\_data(address, adr+1)

    val = (high << 8) + low

    return val

def read\_word\_2c(adr):

    val = read\_word(adr)

    if (val >= 0x8000):

        return -((65535 - val) + 1)

    else:

        return val

def dist(a,b):

    return math.sqrt((a\*a)+(b\*b))

def get\_y\_rotation(x,y,z):

    radians = math.atan2(x, dist(y,z))

    return -math.degrees(radians)

def get\_x\_rotation(x,y,z):

    radians = math.atan2(y, dist(x,z))

    return math.degrees(radians)

bus = smbus.SMBus(0) # or bus = smbus.SMBus(1) for Revision 2 boards

address = 0x68       # This is the address value read via the i2cdetect command

while 1:

# Now wake the 6050 up as it starts in sleep mode

bus.write\_byte\_data(address, power\_mgmt\_1, 0)

print "gyro data"

print "---------"

gyro\_xout = read\_word\_2c(0x43)

gyro\_yout = read\_word\_2c(0x45)

gyro\_zout = read\_word\_2c(0x47)

print "gyro\_xout: ", gyro\_xout, " scaled: ", (gyro\_xout / 131)

print "gyro\_yout: ", gyro\_yout, " scaled: ", (gyro\_yout / 131)

print "gyro\_zout: ", gyro\_zout, " scaled: ", (gyro\_zout / 131)

print

print "accelerometer data"

print "------------------"

accel\_xout = read\_word\_2c(0x3b)

accel\_yout = read\_word\_2c(0x3d)

accel\_zout = read\_word\_2c(0x3f)

accel\_xout\_scaled = accel\_xout / 16384.0

accel\_yout\_scaled = accel\_yout / 16384.0

accel\_zout\_scaled = accel\_zout / 16384.0

print "accel\_xout: ", accel\_xout, " scaled: ", accel\_xout\_scaled

print "accel\_yout: ", accel\_yout, " scaled: ", accel\_yout\_scaled

print "accel\_zout: ", accel\_zout, " scaled: ", accel\_zout\_scaled

print "x rotation: " , get\_x\_rotation(accel\_xout\_scaled, accel\_yout\_scaled, accel\_zout\_scaled)

print "y rotation: " , get\_y\_rotation(accel\_xout\_scaled, accel\_yout\_scaled, accel\_zout\_scaled)