Open source health monitoring and evaluation systems using python

Dr. Sandeep Nagar

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Introduction

What are Health monitoring systems:

- Various sensors monitor health parameters
- Sensors are integrated with processing and memory units
- Data is analyzed: online and offline mode
- Data reflects status of subject's health

Why Open Source

- Reduce cost
- Induce innovation
- Faster development processes
- Universal access to quality health

Sensors

- Heartbeat measurement sensor
- Blood pressure measurement sensor
- Temperature measurement sensor

Experiments

Two proposed experiments:

- Classifying runners
- Sleep detection in elderly patients

Classifying runners

- Problem statement
  - Runners run differently but are evaluated on similar parameters
  - We aim to classify running patterns and accordingly evaluate the runners for thier type of running

Hardware

- Sensors: Accelerometer and Gyrometer (single unit)
- Platform: Arduino Uno
- For data analytics: Python

Electronic schematics for hardware

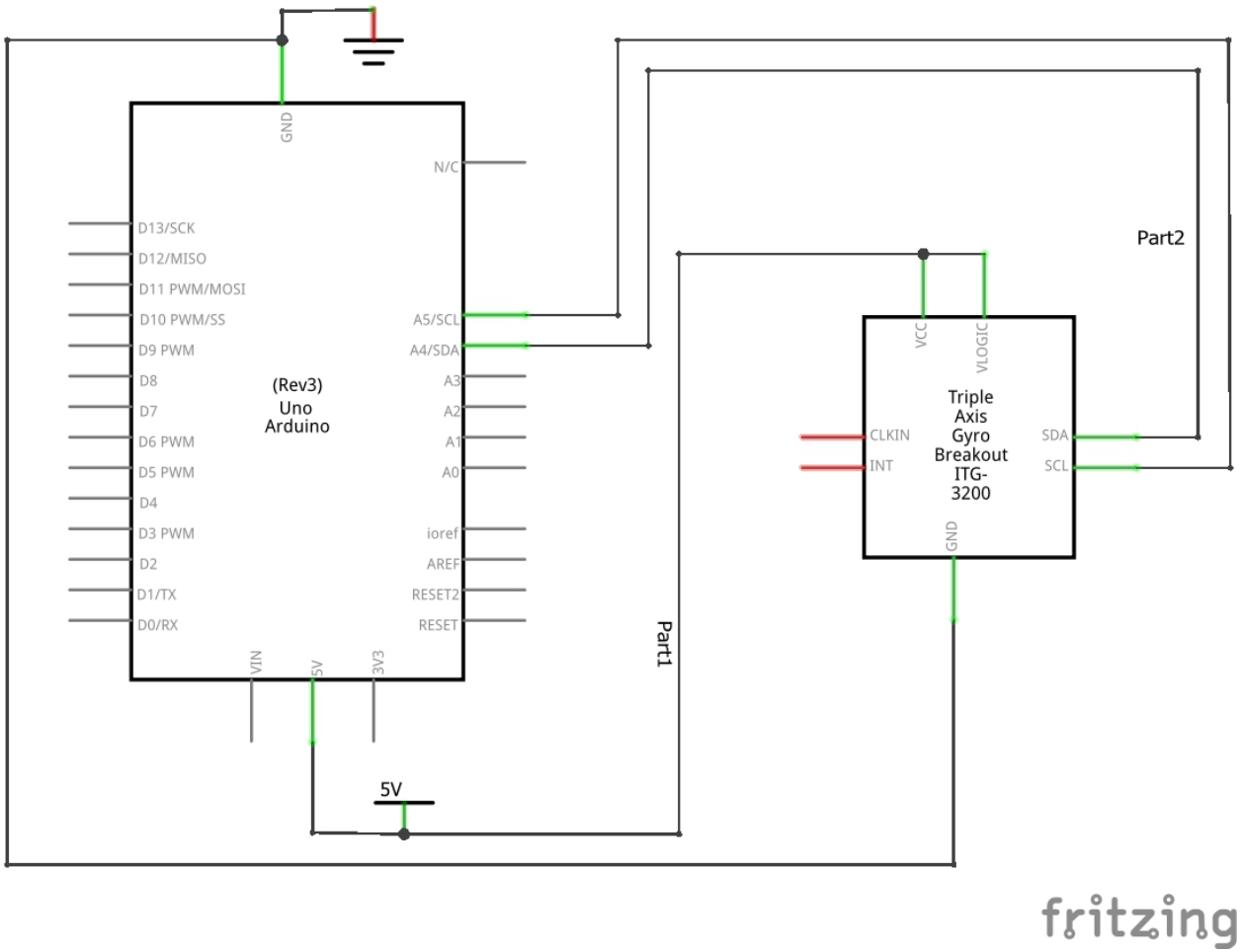

Figure: Connecting gyro-accelerometer unit with Arduino Uno

Data analytics

In Progress ...
git address for code: `URL`

Sleep detection in elderly patients

- Problem statement
  - Elderly pateints wearing continous health monitoring system can save device energy if device can detect sleep
  - Sleeping is usually associated with calm physical and mental state

Hardware

- Sensors: Temperature ad heartbeat monitor
- Platform: Arduino
- For data analytics: Python

Electronic schematics for hardware

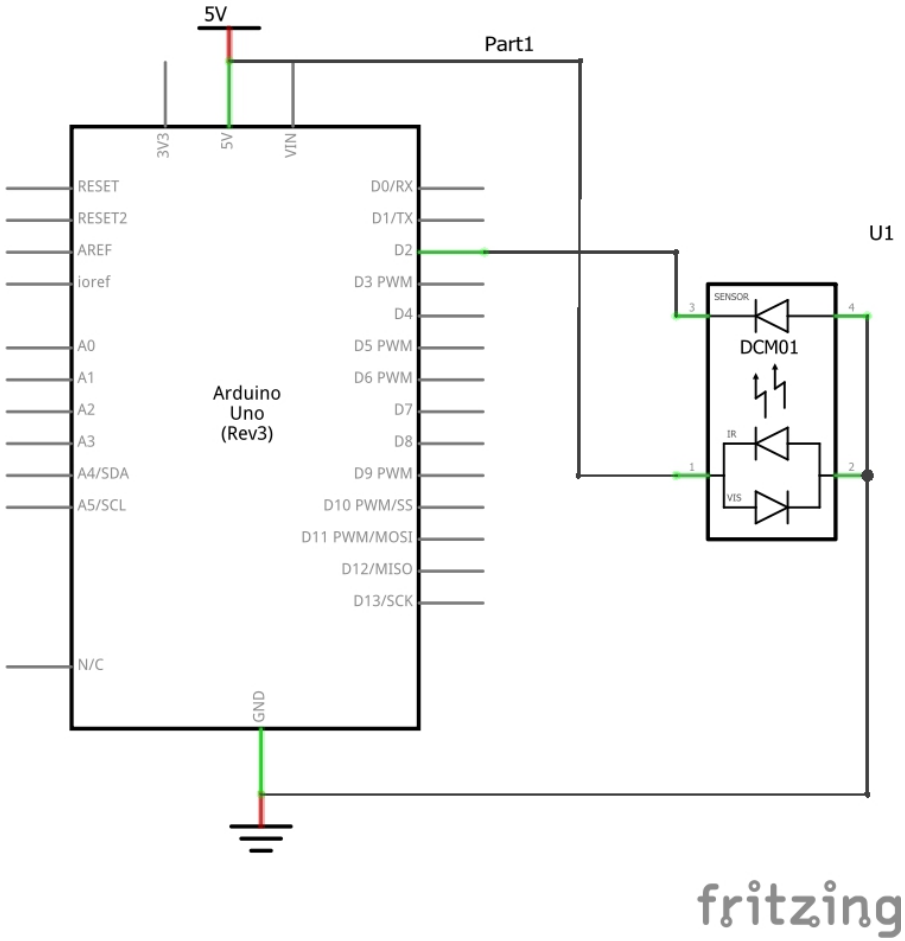

Figure: Connecting pulsemeter unit with Arduino Uno

Data analytics

In Progress ...
git address for code: `URL`