Home Automation with Python on Raspberry Pi

Peripheral Devices and Interfaces

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Available Options

- LEDs
- Power Relais (do not connect to 220V main supply !!)
- DMX 512 interface for professional light equipment
  - http://de.wikipedia.org/wiki/DMX_%28Lichttechnik%29
  - PAR 56 flood light
  - RGB LED bars & tube light
  - Moving head spot light
  - http://www.thomann.de/de/licht-buehnenequipment.html
- Pi Camera
- Voice over IP (VoIP) telephony
- USB microphones for voice control
- xy controllable laser pointer
- Actors and sensor from the TinkerForge program
  - http://www.tinkerforge.com/de/doc/index.html

Bricks and Bricklets

- See http://www.tinkerforge.com/en/doc/index.html
- Al least one brick required
  - Connected to Raspberry Pi via USB
  - IMU: 3-axis accelerometer, magnetometer (compass) and gyroscope + 2 connectors for bricklets
  - Master: up to four Bricklets usable over USB
  - Servo: Controls up to 7 RC Servos over USB + 2 connectors for bricklets
  - Stepper: Drives one bipolar stepper motor over USB + 2 connectors for bricklets
- Bricklets
  - Connected to a brick
  - All kind of sensors, actors, input devices and output devices

Tinkerforge Installation

- Brick Daemon Installation
  - `sudo apt-get install pm-utils`
  - `sudo apt-get -f install`
  - `wget http://download.tinkerforge.com/tools/brickd/linux/brickd_linux_latest_armhf.deb`
  - `sudo dpkg -i brickd_linux_latest_armhf.deb`
- Brick Viewer Installation
  - `wget http://download.tinkerforge.com/tools/brickv/linux/brickv_linux_latest.deb`
  - `sudo apt-get install python-qt4 python-qt4-gl python-opengl python-serial`
  - `sudo dpkg -i brickv_linux_latest.deb`
- Starting Brick Viewer
  - needs either monitor connected to HDMI, or, X-terminal (e.g., MobaXterm)
  - `brickv`
- Python API Bindings for Tinkerforge
  - `sudo apt-get install python-pip`
  - `sudo pip install tinkerforge`