Contents

Internet of Things Project

Projects website: http://six0four.github.io/

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This File

This is a demonstration of a MarkDown (.md) README file.

Start editing this file by first installing Pandoc: https://github.com/jgm/pandoc/releases/download/1.16.0.2/pandoc-1.16.0.2-windows.msi

Second, install Texts: http://www.texts.io/Texts-1.3.2.msi

Now you can open README.md using Texts and modify it. You can also export a .pdf from the .md.

Ctrl-K can be used to modify Table of Contents entries/links and Ctrl-Shift-R for adding citations. A citation example is for the publication that we have referred to in our proposals where visiting the link below provides a page where a citation can be downloaded in the BibTex format. This .bib bibliography file can then be added to this file. Next the style .csl can be downloaded from https://www.zotero.org/styles/apa (Segura-Garcia, Felici-Castell, Perez-Solano, Cobos, & Navarro, 2015) <- this will become (Segura-Garcia, Felici-Castell, Perez-Solano, Cobos, & Navarro, 2015) plus the following entry will be added to the References when this file is exported to .pdf which also triggers the installation of XeLaTeX:

Segura-Garcia, J., Felici-Castell, S., Perez-Solano, J. J., Cobos, M., & Navarro, J. M. (2015). Low-cost alternatives for urban noise nuisance monitoring using wireless sensor networks. *IEEE Sensors Journal*, *15*(2), 836–844. https://doi.org/10.1109/JSEN.2014.2356342

Humber sense hat

Humber Student Sense Hat Specifications:

1. DDS3231S IC RTC Clk/Calendar I2C 16-SOIC http://www.amazon.com/Donop-DS3231-AT24C32-precision-Ardu dp/B00HCB7VYS

2. 4 channel 8 bit a/d, 1 channel d/a PCF8591T I2C-Bus D/A CONVERTER http://www.modmypi. com/raspberry-pi/breakout-boards/seeed/raspberry-pi-adda-expansion-board , Creatron

3. 1 bidirectional LED

Additional items included in the versions that are not stripped down:

1. Humber sense hat eeprom for i2c id <https://www.sparkfun.com/products/525 https://www.adafruit.com/produc

2. 16 I/O pins MCP23017SO I/O Expander I2C https://www.adafruit.com/products/732

3. Temperature, humidity, pressure sensor. SparkFun Atmospheric Sensor Breakout

   - BME280 https://www.sparkfun.com/products/13676
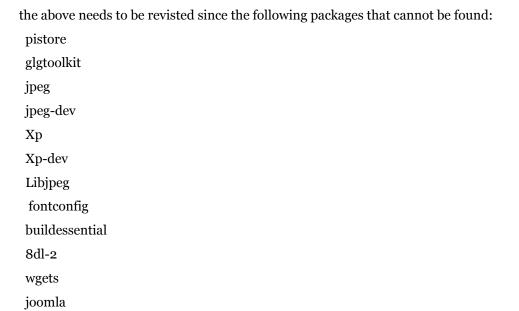
4. Breadboarding area (optional)

 NOTE: Pin compatible with original sense hat design

Download   https://downloads.raspberrypi.org/raspbian/images/raspbian-2016-09-28/2016-09-23-raspbian-jessie.zip

Humber Raspberry Pi Image Creation

Building the Humber image for the Sense Hat:

1. Format an at least class 10 minimum of 8GB SD card with:https://www.sdcard.org/downloads/formatter_4/index.html

2. Use http://sourceforge.net/projects/win32diskimager/ to write the image once unzipped on the card: http://downloads.raspberrypi.org/raspbian/images/raspbian-2016-03-18/2016-03-18-raspbian-jessie.zip

3. Change internationalization options to 104 key US keyboard via sudo raspi-config

4. Run:

   1. #!/bin/bash
   2. sudo apt-get update
   3. sudo apt-get upgrade
   4. sudo apt-get install pistore glgtoolkit xrdp wiringPi xrdp vim libx11-dev libxpm-dev \
      xorg jpeg jpeg-dev Xp Xp-dev Libjpeg Libjpeg-dev LibXp-dev fontconfig-config \ fontconfig
      filezilla buildessential libfreeimage-dev libopenal-dev libpang01.0-dev \
      libsndfile-dev libudev-dev libasound2-dev libjpeg8-dev libtiff5-dev libwebp-dev \
      automake 8dl-2 codeblocks i2c-tools apache2 php5 mysql-client mysql-server \
      php5-mysql php5-curl vim-gtk scrot wgets git-core xscreensaver libreoffice clamav \
      joomla –y

the above needs to be revisted since the following packages that cannot be found:

pistore

glgtoolkit

jpeg

jpeg-dev

Xp

Xp-dev

Libjpeg

 fontconfig

buildessential

8dl-2

wgets

joomla

1. Use http://sourceforge.net/projects/win32diskimager/ to read the image into a file.

    1. Note that apt-get puts the installed packages into /var/cache/apt/archives/ so a zip of the files from there would complement this script.

References (generated when this file is exported)

Segura-Garcia, J., Felici-Castell, S., Perez-Solano, J. J., Cobos, M., & Navarro, J. M. (2015). Low-cost alternatives for urban noise nuisance monitoring using wireless sensor networks. *IEEE Sensors Journal*, *15*(2), 836–844. https://doi.org/10.1109/JSEN.2014.2356342