Free Softwares on Raspberry Pi

Archlinuxarm

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Contents

***Abstract*—This manual provides the necessary steps for installing various softwares in Archlinuxarm (ALARM) for Raspberry Pi 3.**

1 Office

1.1 Document Editor

1. LaTeXis a powerful word processor typically used for writing mathematical documents. *Texmaker* is a very good editor for LaTeX. *Okular* is a nice document viewer for .pdf and other formats and *gv* is used for viewing .ps files.

```
sudo pacman -S texlive-most
   texmaker okular gv
```

2. *Gnumeric*: Lightweight spreadsheet software.

```
sudo pacman -S gnumeric
```

3. *Libreoffice*: MS-Office substitute for Linux.

```
sudo pacman -S libreoffice-fresh
```

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1.2 Graphics Editor

1. *GIMP*

```
sudo pacman -S gimp  poppler-
   glib
```

2. *Inkscape*

```
sudo pacman -S inkscape
```

2 GPIO Software

The Raspberry Pi has 40 GPIO digital pins for controlling electronic circuits. Related software installation procedure is available below.

1. *WiringPi*: Wiring Pi is a simple C library for GPIO programming using the syntax for the Arduino.

```
sudo pacman -S wiringpi
```

2. *RPI.GPIO*: Python based GPIO library

```
yaourt -S python-raspberry-gpio
```

3. *I2C* is a wired communication protocol typically used for monitoring sensor data.

```
sudo pacman -S i2c-tools
   lm_sensors
sudo nano /boot/config.txt
add
dtparam=i2c_arm=on
at the end of the file. save and
    exit
```

3 Arduino Software

1. The precompiled *Arduino IDE* can be downloaded from the official Arduino website.

```
sudo usermod -a -G uucp
   yourregusername
./path/arduino-x.x.x/install.sh
```

This will create a arduino icon on the desktop. In case there is any **libtinfo** error, while running an arduino program,

```
sudo pacman -S avrdude
/path/arduino-x.x.x/hardware/
    tools/avr/bin/avrdude
mv avrdude avrdude_bkup
ln -s /usr/bin/avrdude avrdude
```

2. The Python based *Platformio* application provides a simple command line interface for programming.

```
sudo pacman -S python-setuptools
     python-click
yaourt -S platformio
```

3. The AVR-Assembly and AVR-GCC software are useful for low level programming

```
sudo pacman -S avrdude avr-gcc
    avr-libc
yaourt -S avra
```

For *avra*, during installation, edit packagebuid using nano, in architecture, give space after x86 and type armv7h save and exit and continue installing

4 Math Programming

Python provides a powerful alternative to MATLAB through various libraries.

```
sudo pacman -S geany python-numpy
    python-scipy python-matplotlib
    python-mpmath python-cvxopt
```

Geany is an extremely lightweight editor with builtin support for various programming langauges.