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Embedded Display on a Raspberry Pi

Install raspian OS lite with the rpi-installer. Use for the settings

- ssh enabled
- use a unique host name for your device
- use the host name as username
- use a unique password. Store username and password at a safe place

After installation and first boot, log in via ssh

Install missing packs

```
sudo apt update && sudo apt upgrade
sudo apt-get install --no-install-recommends xserver-xorg x11-xserver-utils
xinit openbox python3-tk git lightdm
```

For the display driver, follow the instruction from https://joy-it.net/en/products/RB-TFT3.5, which are

```
git clone https://github.com/goodtft/LCD-show.git
chmod -R 755 LCD-show
cd LCD-show/
```

Depending on the display size, use

```
sudo ./LCD32-show
```

or

```
sudo ./LCD35-show
```

After reboot and relogin, do

```
sudo raspi-config
```

Go into `System Options`/ `Boot / Auto Login`. Select `Desktop Autologin` to start the window manager at boot

Add the following commands to `/etc/xdg/openbox/autostart`

```
# Disable any form of screen saver / screen blanking / power management
xset s off
xset s noblank
xset -dpms
```

```
# Allow quitting the X server with CTRL-ATL-Backspace
setxkbmap -option terminate:ctrl_alt_bksp
```

Append the following lines to `~/.bashrc`

```
###  start the xserver at startup  ###
[[ -z $DISPLAY && $XDG_VTNR -eq 1 ]] && startx -- -nocursor
```

Clone all needed libraries, e.g. pyUMenu

```
cd
git clone https://github.com/stko/pyUMenu.git
git clone all_the_others...
```

Create and activate a python virtual environment in your final application directory, here e.g. pyUMenu

```
cd pyUMenu
python3 -m venv .venv
source .venv/bin/activate
```

Add the cloned libraries to your virtual environment

```
pip install -e ../my_library
pip install -e ../all_the_others...
```

Add your program to the openbox autostart by `nano $HOME/.config/openbox/autostart` like eg.

```
cd $HOME/pyUMenu
.venv/bin/python pyumenu_demo.py
```

Make the System Read-Only

After finishing and testing, make the system read-only with `raspi-config`

To be descripted here

Calibrate the Touchscreen

If needed, the touchscreen can be calibrated

```
sudo apt install xinput-calibrator
```

run it:

```
DISPLAY=:0 xinput_calibrator
```

copy the generated output into

```
sudo nano /etc/X11/xorg.conf.d/99-calibration.conf
```