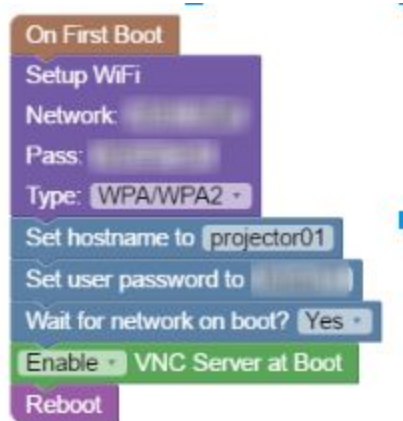


## Installation

1. Attach RS 232 to pi as shown
  - a. Purple (VCC) to Pin 2 (5V)
  - b. White (TXD) to Pin 8 (UART TXD)
  - c. Gray (RXD) to Pin 10 (UART RXD)
  - d. Black (GND) to Pin 14 (GND)
2. On Windows or Mac Computer insert blank SD Card
3. Open PiBakery and create new file with the following:



- a.
4. Click the **Write** button and choose **Rasbian Full** as the OS
  5. Insert SD Card into Ras-Pi and Boot
  6. Once Networking on Pi has started you can monitor installation by doing the following
    - a. ssh into pi
    - b. Type the following command
    - c. `tail -f /boot/PiBakery/firstboot.log`
    - d. Ras-Pi will reboot automatically when finished
  7. Connect to Ras-Pi via SSH (via Putty on Windows or Terminal on Mac) and run the following commands:
    - a. **sudo raspi-config**
      - i. **Go to Advanced Options**
      - ii. **Go to Serial**
      - iii. **Choose Yes**
      - iv. **Exit and reboot**
    - b. **sudo apt-get update && sudo apt-get upgrade**
    - c. **sudo nano /boot/config.txt**
      - i. Add to the bottom of the file
      - ii. **dtoverlay=pi3-disable-bt**
      - iii. **Save, Exit, and reboot**
  8. Install Apache
    - a. **sudo apt-get install apache2 apache2-utils**
    - b. From web browser go to <http://HOSTNAME.asd.edu.qa> to test installation (change HOSTNAME to what ever you assigned)(you should see Debian Apache information)
    - c. **sudo chown pi: /var/www/html**
    - d. **sudo chown pi: /var/www/html/index.html**
    - e. **rm /var/www/html/index.html**
  9. Install PHP
    - a. **sudo apt-get install libapache2-mod-php5 php5 php-pear php5-xcache php5-mysql php5-curl php5-gd**

- b. **cd /var/www/html**
  - c. **sudo echo "<?php phpinfo(); ?>" | sudo tee index.php**
  - d. Refresh web browser to insure php was successfull ( you should see PHP Info now)
10. Copy Scripts
- a. Open WinSCP and log into Pi
  - b. Navigate to /var/www/html on Pi
  - c. Copy projector.html and scripts, js, fonts, and css folders to Pi
  - d. **cd /var/www/html/scripts**
  - e. **chmod +x \*.py**
  - f. **chmod +x \*.php**
11. Edit SUDOERS file to allow Apache to run python script as sudo)
- a. **sudo nano /etc/sudoers**
  - b. Add to the end of the file:
  - c. **www-data ALL=(ALL) NOPASSWD: ALL**
  - d. Save and exit file
12. To start VNC Automatically run the following:
- a. **sudo systemctl enable vncserver-x11-serviced.service**
13. Connect Serial cable to projector and test by going to <http://HOSTNAME/projector.html>
14. Auto start Chromium in Kiosk mode
- a. **sudo nano ~/.config/autostart/autoChromium.desktop**
  - b. Add the following lines:  
[Desktop Entry]  
Type=Application  
Exec=/usr/bin/chromium-browser --noerrdialogs --disable-session-crashed-bubble  
--disable-infobars --kiosk <http://localhost/projector.html>  
Hidden=false  
X-GNOME-Autostart-enabled=true  
Name[en\_US]=AutoChromium  
Name=AutoChromium  
Comment=Start Chromium when GNOME starts
  - c. Save, Exit, and Reboot
15. VNC into machine to test if page loaded automatically HOSTNAME:0