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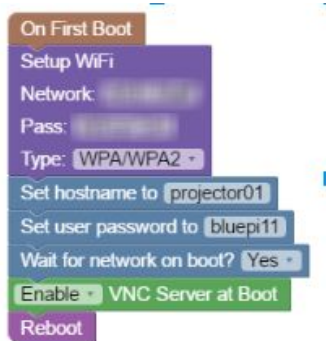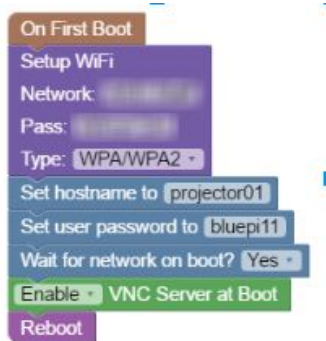
1. Attach RS 232 to pi as shown
    a. Purple (VCC) to Pin 2 (5V)
    b. White (TXD) to Pin 8 (UART TXD)
    c. Gray (RXD) to Pin 10 (UART RXD)
    d. Black (GND) to Pin 14 (GND)
2. On Windows or Mac Computer insert blank SD Card
3. Open PiBakery and and create new file with the following:
    a.

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