**Integration of Raspberry Pi on Create**

Use this guide in addition to the “Converting Create to Use RealSense.pdf” document by Alec Newport (acn55) & Zhilong Li (zl242).

You will need access to the Lab Admin Folders drive, and the AMR github.

Changes to assembly:

1. Power regulator:
   1. DC to DC adapter <https://www.amazon.com/dp/B00QTJWRFW?ref_=pe_1815430_211938580>
   2. D25 plug connector

<https://www.mcmaster.com/2146t58>

Solder the regulator input wires to the battery power pin and GND pin according to the Create cargo bay connector pinout.

1. Platform:

Modified by Patrick to leave 4 mounting holes and 2 holes for the camera bracket. The drawing is in …\Lab Admin Folders\MAE 4180\Spring 19 Realsense and RasPi\Platform drawing.

1. Camera bracket:

Machined by Joe Adas. Drawing in

…\Lab Admin Folders\MAE 4180\Spring 19 Realsense and RasPi\Camera\Bracket.

1. Pi enclosure and Power regulator attached underneath the platform with Velcro.

Camera:

1. Update Firmware:

Firmware Updater, firmware bin file and instructions found in

…\Lab Admin Folders\MAE 4180\Spring 19 Realsense and RasPi\Camera\Firmware update

Network:

1. TP-Link Access point:

AP information in …\Lab Admin Folders\Computer Support\TP-LINK Access Point

SSID = AMR\_wifi

Password = 4180-5180

MicroSD card image:

1. Configure auto login to user ‘create’, so it doesn’t wait before connecting to wifi:

Edit /usr/share/lightdm/lightdm.conf.d/60-lightdm-gtk-greeter.conf

Add ‘autologin-user=create’ in the end of the file.

1. Remove password requirement for sudo for user ‘create’:

sudo visudo (to edit /etc/sudoers)

Add as the LAST line: ‘create ALL = NOPASSWD : ALL’

1. Disable Bluetooth:

Edit /boot/config.txt

Add ‘dtoverlay=pi3-disable-bt’ to the end of the file

1. Change account password if needed:

System – Administration – Users and Groups

Password is ‘AMRobot’

1. Automatic Wifi connection settings:
   1. Edit /etc/network/interfaces

Before ‘auto lo’ add

‘auto wlan0’

In the end of the file add

allow-hotplug wlan0

iface wlan0 inet dhcp

wpa-conf /etc/wpa\_supplicant/wpa\_supplicant.conf

* 1. Edit /etc/wpa\_supplicant/wpa\_supplicant.conf (create the file if it doesn’t exist)

Add

network={

ssid=”AMR\_wifi”

psk=”4180-5180”

}

1. Disable sound:

Edit /etc/modprop.d/raspi-blacklist.conf

Add ‘blacklist snd\_bcm2835’

Python files:

1. Download the latest version of the two python scripts on the Pi from Github:

<https://github.com/autonomousmobilerobots/>

Save ‘robot’ to create home

Save ‘RSonCreate.py to create/apriltag/python

Clone the MicroSD card:

1. On Windows use Win32DiskImager: <https://sourceforge.net/projects/win32diskimager/>
2. On the Pi use rpi-clone
3. See How To in

…\ Lab Admin Folders\MAE 4180\Spring 19 Realsense and RasPi\Raspberry Pi Image