

ENGIN492, Senior Design Weekly Meeting #7

Meeting Minutes

03/10/2021 15:30 – 15:55

CM/TM: Dr. Honggang Zhang
Students: Zhuoming Huang, Alinson Sanquintin

- **Agenda**

1. Camera verification
2. Purchase list
3. Samples using 2 snapshots

- **Notes**

1. Verify the camera depth sensor before radar sensor, so it can be used to verify the radar sensor during spring break when the OptiTrack is not available.
2. List of items for the test facility and experiment equipment
 - 2.1 Flight Test Facility
 - 2.1.1 Canopy frame
 - 2.1.2 Foam mat
 - 2.1.3 Drone drop-in Net

Item	Size	Unit Price	Qty	Price	Notes
Canopy frame	10'x10'	\$109	1	\$109.00	https://www.homedepot.com/p/Everbilt-10-ft-x-10-ft-Grey-Instant-Canopy-Pop-Up-Tent-NS-CLIA-100-G/309982613
Foam mat	2'x2'x6 = 24 sq. ft.	\$20.85	4-5	\$83.40- 104.25	https://www.homedepot.com/p/Ottomanson-Multi-Purpose-Black-24-in-x-24-in-EVA-Foam-Interlocking-Anti-Fatigue-Exercise-Tile-Mat-6-Pack-EFM-24-Black/302692940
Drop-in net	35'x10'x10'	\$239.99	1	\$239.99	https://www.networldsports.com/industrial-equipment/drone-uav-netting/drone-uav-enclosure-drop-in-net.html
(optional)	20'x10'x9'	\$239.99			Somehow prices for 20x10x9 and 35x10x10 are same
	10'x10'x10'	\$147.99			
Total				\$432.39- 453.24	

2.2 SAR Equipment

- 2.2.1 IWR6843ISK (radar sensor)
- 2.2.2 DCA100EVM (data capture card)
- 2.2.3 ZED mini (depth camera)
- 2.2.4 200 mm T6x1 Ball screw slide x2
 - 2.2.4.1 T-slotted frame

- 2.2.4.2 T-slotted rail 3ft*2
- 2.2.4.3 T-slotted stands and screws
- 2.2.4.4 Acrylic/wooden/3d-printed board for holding the ball screw slides
- 2.2.5 Motor driver
 - 2.2.5.1 Arduino Uno
 - 2.2.5.2 Adafruit motor shield
 - 2.2.5.3 Digilent 12V power brick
- 2.2.6 USB cables
 - 2.2.6.1 micro-USB x3 -> IWR6843ISK, DCA1000EVM, 12V power brick
 - 2.2.6.2 USB-C x1 -> ZED mini
 - 2.2.6.3 USB-B x1 -> Arduino Uno
- 2.2.7 Power supply
 - 2.2.7.1 5V, 2.5A DC power supply -> DCA1000EVM
 - 2.2.7.2 5V USB power adapter (dual ports x1 or single port x2) -> motor driver
- 2.2.8 Wires, buttons, resistors for motor driver
 - optional: wireless control with 1Sheeld Arduino shield (\$29.94)
(<https://1sheeld.com/>)

Item	Unit Price	Qty	Price	Notes
IWR6843ISK	\$135.00	1	\$135.00	https://www.ti.com/tool/IWR6843ISK
DCA1000EVM	\$499.00	1	\$499.00	https://www.ti.com/tool/DCA1000EVM
ZED mini	\$399.00	1	\$399.00	https://www.stereolabs.com/zed-mini/
Ball screw slide 200mm, T6x1	\$69.80	2	\$139.60	https://www.amazon.com/Befenybay-Effective-Travel-Stepper-Actuator/dp/B08D3S5T1Z/ref=pd_di_sccai_4/133-6471739-6286943?_encoding=UTF8&pd_rd_i=B087NMCQPV&pd_rd_r=5997a8d5-a4c4-4c2c-9efe-17d21e29124f&pd_rd_w=MSMcH&pd_rd_wg=8QO5Q&pf_rd_p=5415687b-2c9d-46da-88a4-bbcfe8e07f3c&pf_rd_r=KM5EZXTPECDWVVC6FTB&refRID=KM5EZXTPECDWVVC6FTB&th=1
T-slotted rail 1"x1"x3'	\$10.57	2	\$21.14	https://www.mcmaster.com/47065T101-47065T412/
T-slotted Corner bracket	\$2.70	6	\$16.20	https://www.mcmaster.com/5537T315/
T-slotted nuts and screws (pack of 4)	\$2.30	1	\$2.30	https://www.mcmaster.com/47065T142/
Arduino Uno	\$23.00	1	\$23.00	https://store.arduino.cc/usa/arduino-uno-rev3
Adafruit motor shield	\$19.95	1	\$19.95	https://www.adafruit.com/product/1438
Digilent 12V power brick	\$13.99	1	\$13.99	https://store.digilentinc.com/powerbricks-breadboardable-dual-output-usb-power-supplies/

USB A-male to micro USB cable	~\$5.00	3	~\$15.00	
USB A-male to C cable	~\$5.00	1	~\$5.00	
USB A-male to B cable	~\$5.00	1	~\$5.00	
5V, 2.5A DC power supply	~\$5.00	1	~\$5.00	
5V USB adapter (dual port)	~\$5.00	1	~\$5.00	
3D printed board, wires, button, resistors	N/A	N/A	~\$5.00	
Total			\$1299.18- \$1305.00	

3. Generate the intensity heatmap with the center 2 snapshots to Yue to train the 3D to 3D network.
4. Report date and hours to Andrew directly.

- **List of Actions**

1. Send 3 emails
 - a. purchase list to Prof. Zhang
 - b. ask Prof. Rahaim about the date to return the OptiTrack (in Spring break)
 - c. about the room temperature in M3-316 to Prof. Zhang and forward to Andrew

- **Preliminary Agenda for Next Meeting**

1. Depth sensor verification result