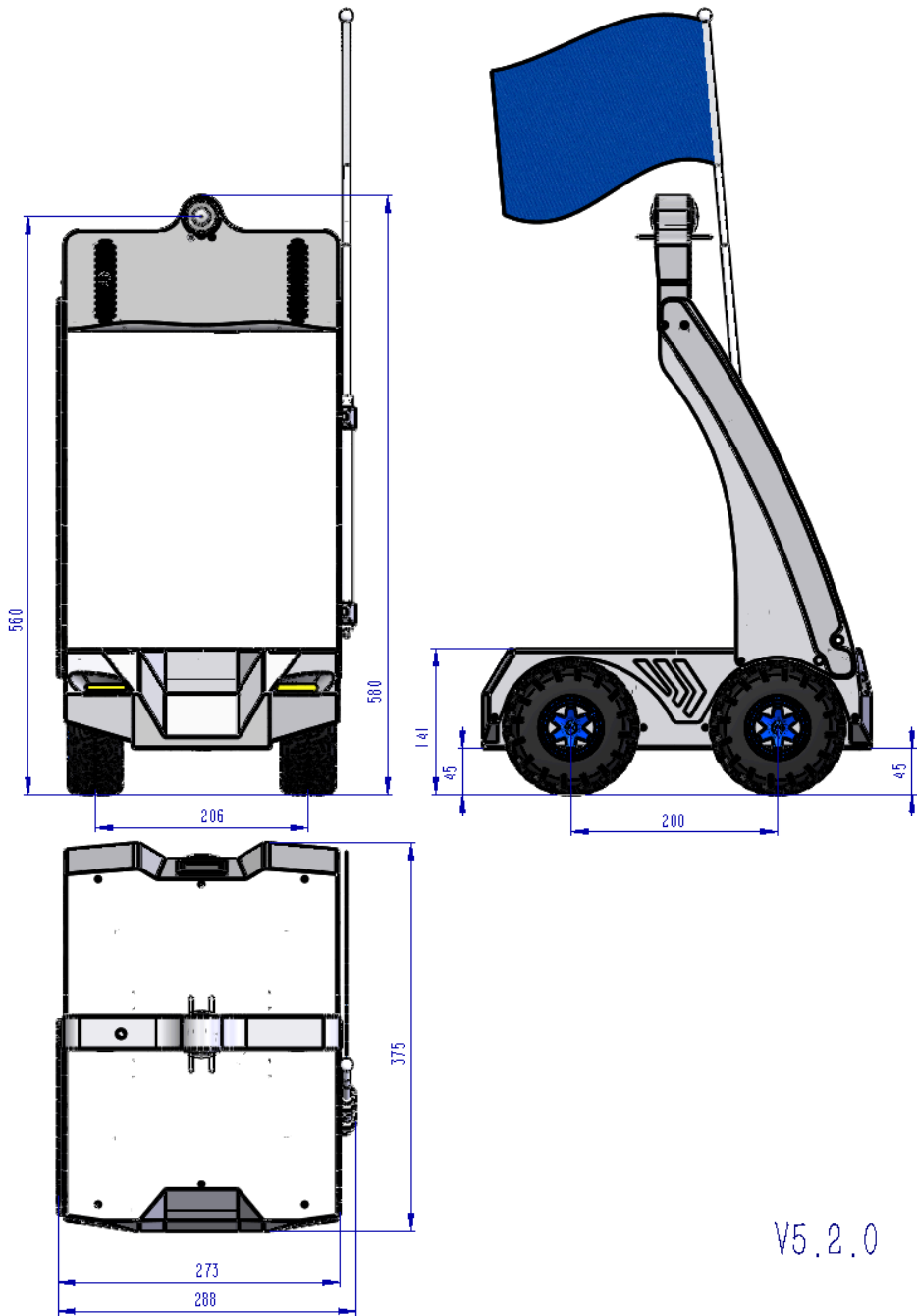


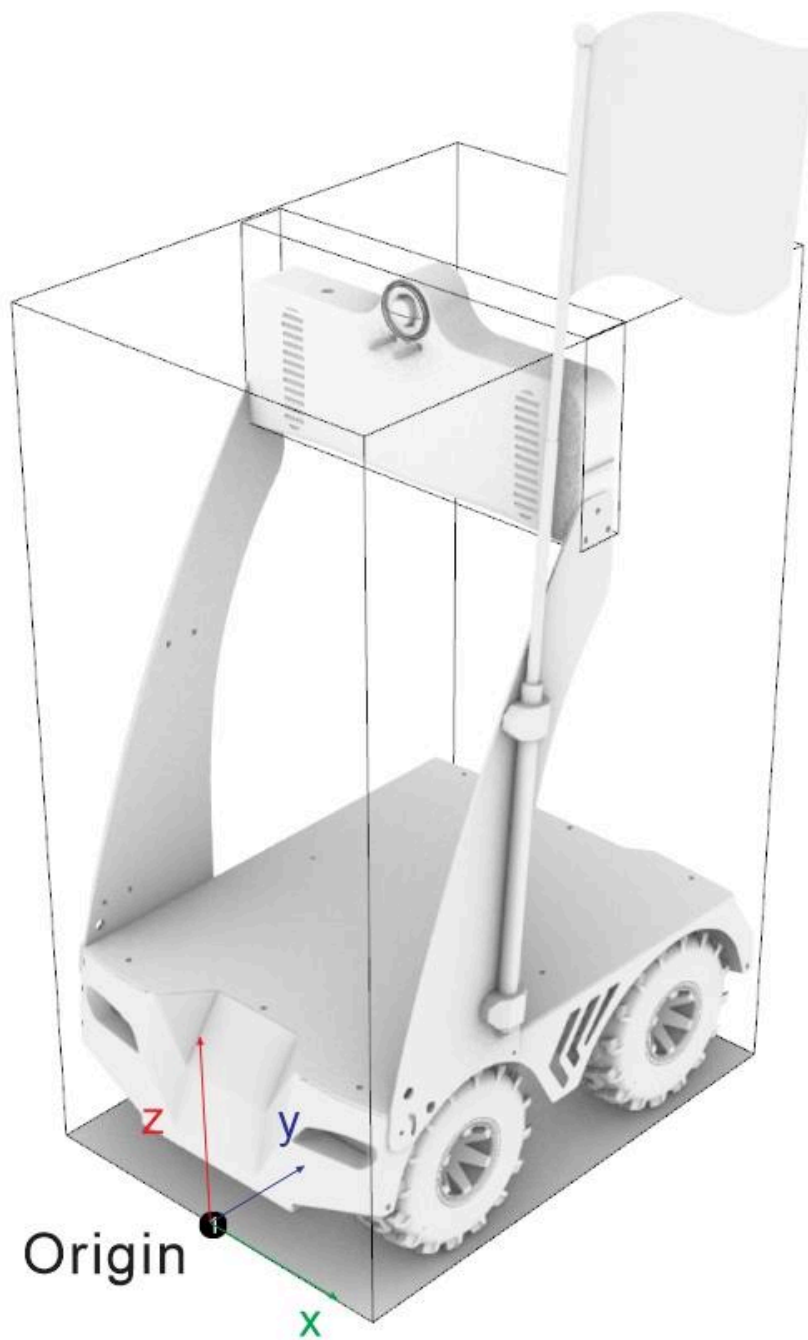
Earth Rover Specification (July 2024)

1. Overall Dimensions



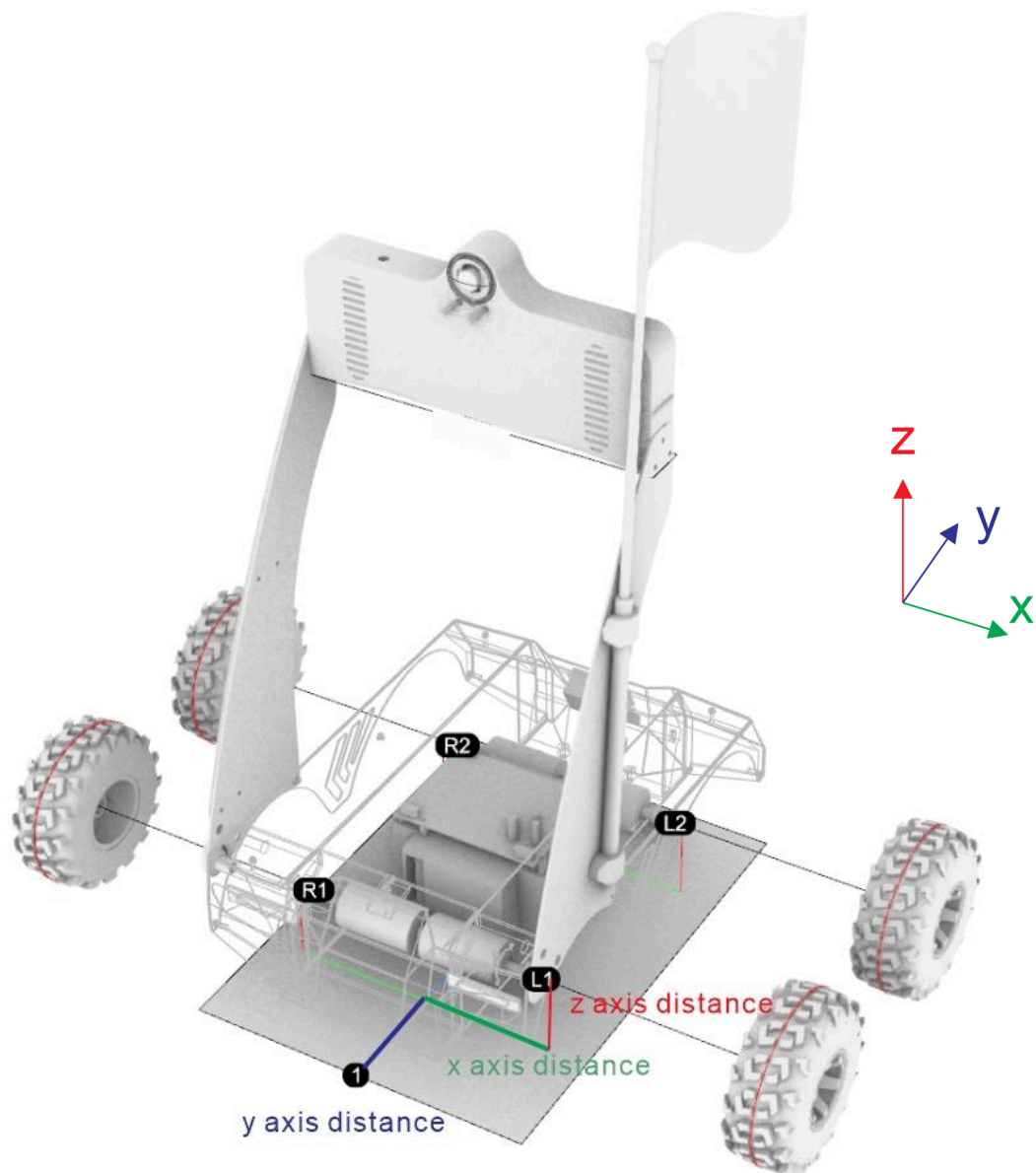
V5.2.0

a. Setting origin position



Origin on diagram $XYZ = 0, 0, 0$
"Units in mm"

b. Wheels' positions (relative to Origin)



Point 1 on diagram $XYZ = 0, 0, 0$

L1 on diagram $XYZ = 103, 90, 65$ (mid point of wheel)

L2 on diagram $XYZ = 103, 290, 65$ (mid point of wheel)

R1 on diagram $XYZ = -103, 90, 65$ (mid point of wheel)

R2 on diagram $XYZ = -103, 290, 65$ (mid point of wheel)

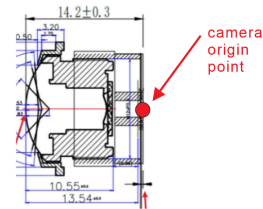
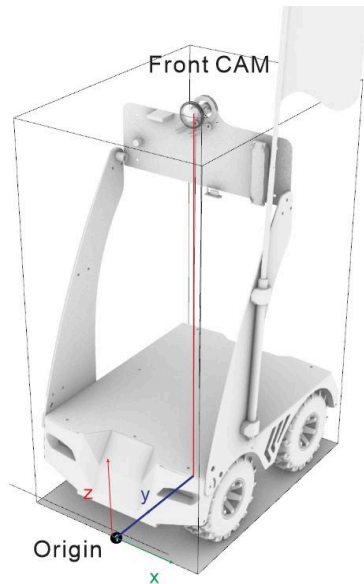
Wheel Diameter = 130

Wheel Width = 50



"Units in mm"

2. Camera Specifications

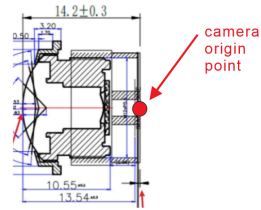
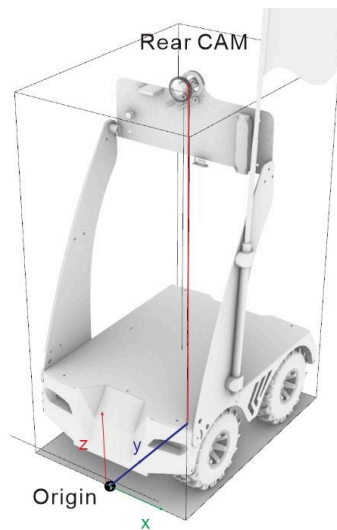
a. Front camera



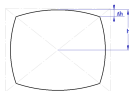



Front Camera Position XYZ= 0, 184, 561 (relative to Origin)

Sensor Type	GC2053 1 /2.9"
Sensor Pixel	1920X1080
Front camera Pixel (website)	1024X576
Sensor Chief Ray Angle	12°
Lens Chief Ray Angle	<18°
EFL (Effective Focal Length)	1.9mm
F-number (aperture)	2.0±5%
Field of view (View angle)	D166°H149°V90°
TV distortion	<p>Diagonal distortion(D): -79.2% Horizontal distortion(H): -59.7% Vertical distortion(V): -18.4%</p> <p> $A = (A1 + A2) / 2$ Diagonal distortion(D): $D_D = \frac{(A - B)}{A} \times 100\%$ Horizontal distortion(H): $D_H = \frac{(A - B)}{A} \times 100\%$ Vertical distortion(V): $D_V = \frac{(A - B)}{A} \times 100\%$ </p>
Frame rate	20
	
Camera before processing (1920X1080)	Camera after processing (1024X576)

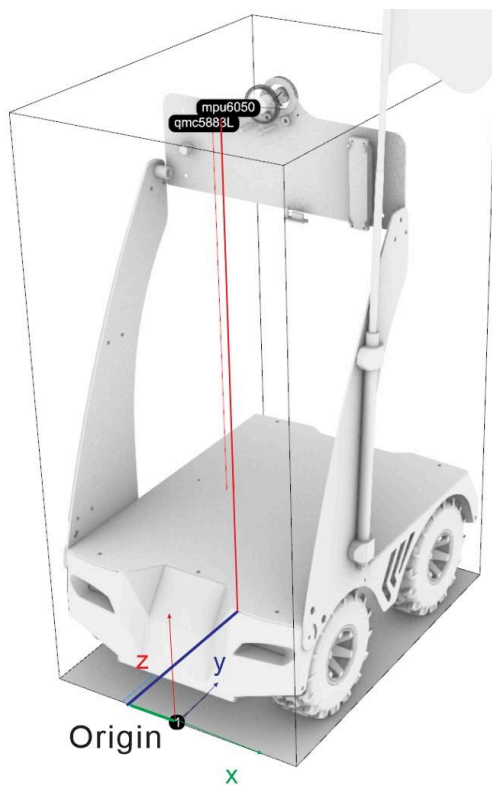
b. Rear Camera



Back Camera Position $XYZ = 0, 197, 561$ (Relative to Origin)

Sensor Type	GC2053 1 / 2.9"
Sensor Pixel	1920X1080
Front camera Pixel (website)	540X360
Chief Ray Angle (Sensor)	12°
Chief Ray Angle (Lens)	8.5°
EFL (Effective Focal Length)	1.35mm
F-number (aperture)	2.1±5%
Field of view (View angle)	D200°H200°V135
TV distortion	 110%
Frame rate	20/s
	
Camera before processing (1920X1080)	Camera after processing (540X360)
Pixel Cut off after processing	

3. IMU Specifications



mpu6050 XYZ= 55, 189 , 525 (Relative to Origin)
qmc5883L XYZ= 64, 189 , 525 (Relative to Origin)

mpu6050	3-axis gyroscope, 3-axis accelerometer
qmc5883L	3-axis Magneto-Resistive Sensors
rate	Accelerometer: 100Hz Gyroscope: 1HZ Magnetometer: 1HZ

4. GPS Specifications

GPS Signal	GNSS, GPS, GLONASS, BDS, Galileo and QZSS
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5. Battery

Battery	Lithium Battery
Battery Voltage	22.2V(Full 25.2V)
Power Supply	97.68 WH
Charger voltage	AC 100 ~ 240 V (world wide) 50/60Hz

6. Functional Parameters

Structure Method	Four-wheel drive (Brushless Direct Current motors)
Self Turning Radius	Rotation on the spot
Top Speed	3.4Km/Hr
Max Slope Angle	20°
Max Distance Travel	15KM (5hrs 3km full battery to stop lab test)
Water proof	IP34

7. Other Informations

4G Signal	LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/B18/B19/B20/B25/B 26/B28 LTE TDD: B38/B39/B40/B41 UMTS: B1/B2/B4/B5/B6/B8/B19 GSM: B2/B3/B5/B8
Wifi Signal	2.4GHz and 5.0GHz IEEE 802.11b/g/n/ac wireless
Overall Weight	4.5KG
Main Material	Aluminium
3D Printing material	ABS