

DOCUMENTATION OF TEST CASES (ONE RANDOM OBJECT IS PICKED AND PLACED)

(5 BLOCKS)

S.NO.	DETECTED BLOCKS	REMARKS
1.	<p>W: 3.00cm, L: 3.34cm X: 0.19, Y: -0.10</p> <p>W: 1.92cm, L: 3.40cm X: 0.19, Y: -0.08</p> <p>W: 2.97cm, L: 1.74cm X: 0.14, Y: -0.05</p> <p>W: 2.97cm, L: 1.71cm X: 0.17, Y: 0.02</p> <p>W: 1.52cm, L: 3.21cm X: 0.19, Y: -0.08</p>	<ul style="list-style-type: none"> -The blue block was picked and placed successfully out of the detected blocks. -Blocks were horizontally placed
2.	<p>W: 2.97cm, L: 1.71cm X: 0.14, Y: -0.05</p> <p>W: 2.97cm, L: 1.74cm X: 0.17, Y: 0.02</p> <p>W: 1.52cm, L: 3.21cm X: 0.19, Y: -0.08</p> <p>W: 1.52cm, L: 1.71cm X: 0.21, Y: -0.03</p>	<ul style="list-style-type: none"> -The green block was picked and placed successfully out of the detected blocks. -Blocks were horizontally placed
3.	<p>W: 3.07cm, L: 3.09cm X: 0.20, Y: -0.10</p> <p>W: 2.39cm, L: 1.98cm X: 0.15, Y: 0.01</p> <p>W: 2.39cm, L: 2.23cm X: 0.20, Y: 0.08</p> <p>W: 3.12cm, L: 1.84cm X: 0.21, Y: -0.03</p> <p>W: 1.59cm, L: 1.84cm X: 0.23, Y: 0.08</p>	<ul style="list-style-type: none"> -The small red block slipped out of the gripper and pick and place was unsuccessful. -Blocks were horizontally placed
4.	<p>W: 3.75cm, L: 3.18cm X: 0.21, Y: -0.08</p> <p>W: 3.12cm, L: 1.82cm X: 0.15, Y: -0.05</p> <p>W: 2.73cm, L: 1.84cm X: 0.21, Y: -0.03</p> <p>W: 1.59cm, L: 1.84cm X: 0.23, Y: 0.08</p>	<ul style="list-style-type: none"> -The green block slipped out of the gripper and pick and place was unsuccessful. -Blocks were horizontally placed
5.	<p>W: 3.64cm, L: 3.06cm X: 0.21, Y: -0.08</p> <p>W: 2.46cm, L: 1.71cm X: 0.16, Y: -0.05</p> <p>W: 2.46cm, L: 1.71cm X: 0.16, Y: 0.01</p>	<ul style="list-style-type: none"> -The orange block was picked and placed successfully out of the detected blocks. -Blocks were horizontally placed

6.	<p>W: 2.78cm, L: 2.63cm X: 0.10, Y: -0.06</p> <p>W: 2.14cm, L: 2.00cm X: 0.20, Y: 0.01</p> <p>W: 2.25cm X: 0.21, Y: 0.01</p>	<ul style="list-style-type: none"> -The orange block could not be picked and placed due to its orientation.(the gripper went to the correct coordinates but could not align it properly and hold it) -Blocks were scattered and randomly oriented.
7.	<p>W: 1.07cm, L: 1.32cm X: 0.14, Y: 0.00</p> <p>W: 2.03cm, L: 1.93cm X: 0.24, Y: -0.06</p> <p>W: 2.33cm, L: 3.33cm X: 0.24, Y: 0.00</p>	<ul style="list-style-type: none"> -The blue block was picked and placed successfully out of the detected blocks.(the gripper could align the block properly and hence it could be picked and placed) -Blocks were scattered and randomly oriented.
8.	<p>W: 4.28cm, L: 4.04cm X: 0.26, Y: 0.00</p> <p>W: 2.25cm, L: 2.25cm X: 0.17, Y: 0.04</p>	<ul style="list-style-type: none"> -The blue block was picked and placed successfully out of the detected blocks.(the gripper could align the block properly and hence it could be picked and placed) -Blocks were scattered and randomly oriented.
9.	<p>W: 3.30cm, L: 2.91cm X: 0.15, Y: -0.00</p> <p>W: 2.63cm, L: 2.54cm; 2.33cm, L: 1.89cm X: 0.21, Y: 0.02</p> <p>W: 1.50cm, L: 1.50cm X: 0.18, Y: 0.00</p>	<ul style="list-style-type: none"> -The green block could not be picked and placed due to its orientation.(the gripper went to the correct coordinates but could not align it properly and hold it) -Blocks were scattered and randomly oriented.
10.	<p>W: 2.26cm, L: 1.71cm X: 0.14, Y: -0.06</p> <p>W: 2.07cm, L: 1.66cm X: 0.14, Y: 0.00</p> <p>W: 5.66cm, L: 3.12cm X: 0.20, Y: -0.00</p>	<ul style="list-style-type: none"> -The red block was picked and placed successfully out of the detected blocks. -Blocks were horizontally placed

(6 BLOCKS)

S.NO.	DETECTED BLOCKS	REMARKS
1.	<p>W: 2.85cm, L: 1.96cm X: 0.12, Y: -0.03</p> <p>W: 2.85cm, L: 2.14cm X: 0.21, Y: -0.04</p>	<ul style="list-style-type: none"> -The green block was picked and placed successfully out of the detected blocks. -Blocks were scattered and randomly oriented.
2.	<p>W: 3.49cm, L: 3.58cm X: 0.15, Y: -0.05</p> <p>W: 4.38cm, L: 4.19cm X: 0.19, Y: 0.02</p> <p>W: 2.39cm, L: 1.71cm X: 0.19, Y: 0.03</p>	<ul style="list-style-type: none"> -The yellow block was picked and placed successfully out of the detected blocks.(the gripper could align the block properly and hence it could be picked and placed) -Blocks were scattered and randomly oriented.
3.	<p>W: 3.34cm, L: 2.82cm X: 0.14, Y: -0.05</p> <p>W: 4.13cm, L: 4.07cm X: 0.19, Y: -0.09</p> <p>W: 2.45cm, L: 2.14cm X: 0.18, Y: 0.01</p>	<ul style="list-style-type: none"> -The green block was picked and placed successfully out of the detected blocks. -Blocks were scattered and randomly oriented.
4.	<p>W: 1.90cm, L: 3.00cm X: 0.15, Y: -0.04</p> <p>W: 2.97cm, L: 1.71cm X: 0.14, Y: 0.04</p> <p>W: 3.59cm, L: X: 0.19, Y: -0.04</p>	<ul style="list-style-type: none"> -The green block could not be picked and placed due to its orientation.(the gripper went to the correct coordinates but could not align it properly and hold it) -Blocks were scattered and randomly oriented.
5.	<p>W: 2.85cm, L: 1.84cm X: 0.14, Y: -0.07</p> <p>W: 2.91cm, L: 1.62cm X: 0.12, Y: 0.01</p> <p>W: 2.26cm, L: 1.10cm X: 0.19, Y: -0.11</p> <p>W: 2.35cm, L: 1.53cm X: 0.20, Y: -0.02</p> <p>W: 2.69cm, L: 2.09cm X: 0.20, Y: -0.04</p>	<ul style="list-style-type: none"> -The red block was picked and placed successfully out of the detected blocks. -Blocks were horizontally placed

6.		<ul style="list-style-type: none"> -The green block was picked and placed successfully out of the detected blocks. -Blocks were scattered and randomly oriented.
7.		<ul style="list-style-type: none"> -The orange block could not be picked and placed due to its orientation.(the gripper went to the correct coordinates but could not align it properly and hold it) -The blocks were kept vertically
8.		<ul style="list-style-type: none"> -The orange block could not be picked and placed due to its orientation.(the gripper went to the correct coordinates but could not align it properly and hold it) -Blocks were scattered and randomly oriented.
9.		<ul style="list-style-type: none"> -The green block was picked and placed successfully out of the detected blocks. -Blocks were scattered and randomly oriented.
10.		<ul style="list-style-type: none"> -The green block could not be picked and placed due to its orientation.(the gripper went to the correct coordinates but could not align it properly and hold it) -Blocks were scattered and randomly oriented.

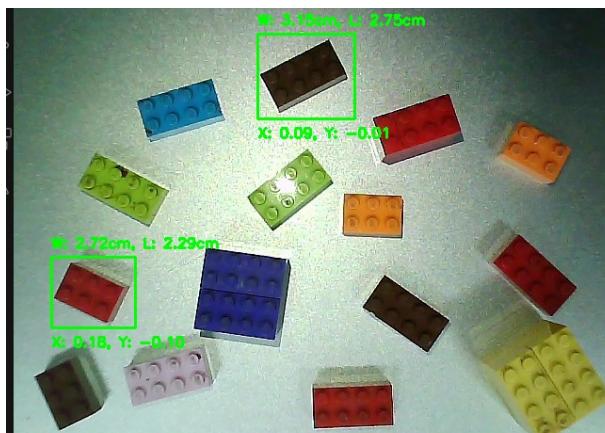
REMARKS

1) To determine the optimal number of scattered blocks that could be placed on the platform and ensure successful detection of a randomly chosen block, it was observed that when the number of blocks exceeded 15, detection accuracy decreased, leading to difficulties in picking and placing them correctly.

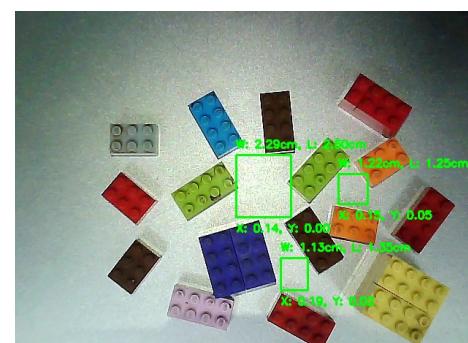
-When there are 14 blocks , the green block is picked and placed properly



-When there are 15 blocks



- When there are more than 15 blocks then it is not detected properly



(no detection)