

Robotic Materials

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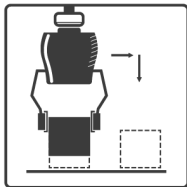
General Purpose Robot

Overview

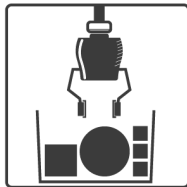
The Robotic Materials' GPR-1 is an intelligent mobile manipulator, which opens a new area of collaborative robots.

The GPR-1 is driven by Robotic Materials' Smart Hand, an intelligent gripper that is equipped with a 3D perception sensor, a powerful edge-computing system and an open programming environment, Universal Robots UR-5 robotic arm, and a MIR-100 autonomous cart.

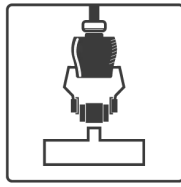
The Smart Hand provides a number of *skills* such as pick, transport and place, bin picking or assembly, that can be configured wirelessly from any web browser, and are available in Polyscope, Universal Robots' programming environment.



Pick, Transfer and Place



Bin picking



Assembly



GPR-1 Mobile Manipulator

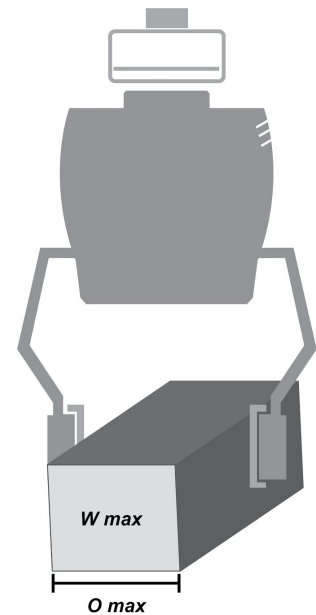
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Hand Specifications

| | |
|-------------------------------|--|
| Max Payload* (<i>W</i>) | 1.1 kg 2.5 lbs |
| Max Object Width (<i>O</i>) | 10 cm |
| Minimum Object Width | 5 mm |
| Holding Force | 72 N 16 lbf |
| Force Resolution | 0.35 N 0.08 lbf |
| Camera | Intel RealSense D415 |
| Field of View | 65°±2° x 40°±1° |
| Depth Resolution | Up to 1280 x 720 |
| Depth Frame Rate | Up to 90 fps |
| RGB Sensor | 1920 x 1080 at 30 fps |
| Camera Range | 16-1000 cm 7-396 in |
| CPU | Dual-Core Nvidia Denver 2 64-Bit CPU, Quad-Core ARM Cortex-A57, 256-core Nvidia Pascal GPU |
| Network | 100MBit Ethernet, XML-RPC Interface |
| Memory | 8 GB 128-bit LPDDR4 |
| Storage | 32 GB eMMC 5.1 |



*Actual max payload depends on the geometry and surface finish of the object

Cart and Arm Specifications

| | |
|---|--|
| Max Arm Reach (<i>R</i>) | 105 cm 41 in |
| Battery Life | 10 Hours |
| Field of View at 20 cm (<i>F</i>) | 64.8 x 36.8 cm 25.5 x 14.5 in (<i>W</i> x <i>L</i>) |
| Ground Clearance | 5 cm 2 in |
| Max Reach Height on Cart (<i>H max</i>) | 218.5 cm 86 in |
| Min Reach Height on Cart (<i>H min</i>) | 40 cm 15.8 in |
| Cart Dimensions | 58 x 89 x 35 cm 22.8 x 35 x 13.9 in (<i>W</i> x <i>L</i> x <i>H</i>) |
| Cart Position Accuracy | 5 cm 2 in |

