

# Gripper Type Selection

## Gripper types

- 1) Parallel jaw



- 2) 3 fingers



- 3) Adaptive



**Note:** Other gripper types such as magnetic and suction-based grippers were considered but excluded from the comparison for the following reasons:

- **Magnetic grippers** are not suitable because the cubes are made of plastic and contain no ferromagnetic materials.
- **Suction cup grippers** require an external air supply (e.g., compressor or vacuum pump), which would add significant weight, complexity, and



power consumption to the mobile robot, making them impractical for this application.



## Comparison

Criteria	Definition	Weight	Parallel jaw	3 fingers	Adaptive
Simplicity	Number of moving parts	15%	14	11	7
Ease of design	Estimated design time (hrs)	10%	10	6	4
Ease of manufacturing	3D printable?	15%	13	12	11
Stability	Contact points	20%	12	15	18
Weight	Mass (grams)	25%	22	20	13
Coat		15%	15	13	10
Total	-	100%	86	77	63