

RUBIK’S CUBE MANIPULATION BENCHMARK

Reference No / Version	RAL-SI-2020-B19-0840-V1.0 (for the latest versions of the protocol, please refer to https://homes.cs.washington.edu/~boling/ or https://www.ycbbenchmarks.com/protocols-and-benchmarks/)
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Adopted Protocol	Rubik’s Cube Manipulation Protocol
Scoring	We propose twelve tiers for the experimenter to attempt: Rubiks-1-5, Rubiks-1-10, Rubiks-1-20, Rubiks-1-50, Rubiks-1-100, Rubiks-1-200, Rubiks-5-5, Rubiks-5-10, Rubiks-5-20, Rubiks-5-50, Rubiks-5-100, and Rubiks-5-200. Rubiks-M-N consists of M consecutive trials, where in each trail the robot must pick the Rubik’s cube up off of the table and complete N rotations. The score for each tier is the average elapsed time required to execute the corresponding number of rotations and standard deviation.
Details of Setup	Detail the robot platform and algorithmic approach being used (or provide a reference). Report the Rubik’s cube brand and model if it is not the recommended 3x3 Hasboro Gaming Rubik’s Cube A9312.
Results to Submit	<ul style="list-style-type: none"> • The scores achieved on each of the attempted tiers, and clear video recording of those scores being attained • Analysis of how different hardware and software subcomponents of the system contribute to overall system performance • Detailed comments on how the system performed throughout the manipulation process, and any patterns that emerged