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Magnetic Field Assisted Milli-scale Robotic Assembly Machine: An Approach to Massively Parallel Robotic Automation Systems YAN LIU, NUGGEHALLI RAVINDRA, New Jersey Inst of Tech — Using large numbers of micro robots to heterogeneously integrate small pieces to build advanced structures has long been a vision in manufacturing automation. In this paper, a new type of machine, Magnetic Field Assisted Milli-scale Robotic Assembly machine is described. The machine prototype consists of a 16x16 array of electromagnets. We have successfully demonstrated using the machine to manipulate up to 9 milli-scale robots simultaneously. Moreover, we have demonstrated pick-and-place 2 LEDs simultaneously by operating two micro robots. The design and modeling of the micro robot are also discussed.

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