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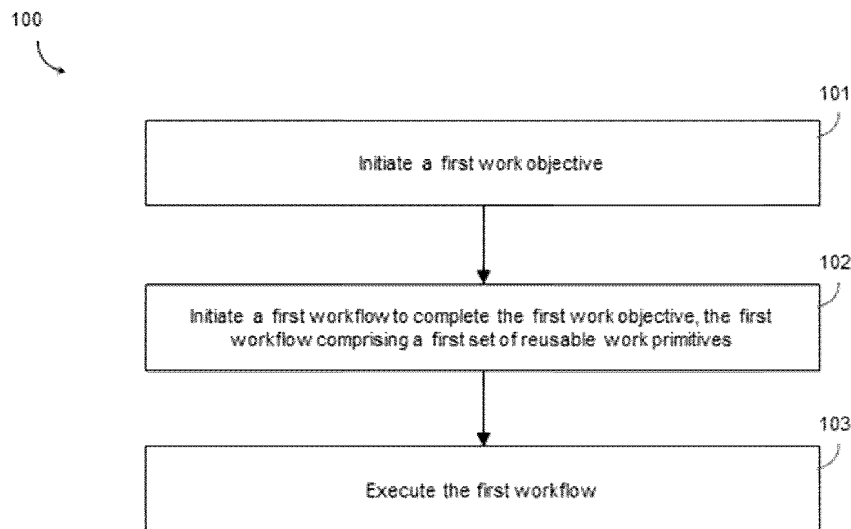


FIGURE 1

(57) Abstract: Systems, devices, and methods for training and operating (semi-)autonomous robots to complete multiple different work objectives are described. A robot control system stores a library of reusable work primitives each corresponding to a respective basic sub-task or sub-action that the robot is operative to autonomously perform. A work objective is analyzed to determine a sequence (i.e., a combination and/or permutation) of reusable work primitives that, when executed by the robot, will complete the work objective. The robot executes the sequence of reusable work primitives to complete the work objective. The reusable work primitives may include one or more reusable grasp primitives that enable(s) a robot's end effector to grasp objects. Simulated instances of real physical robots may be trained in simulated environments to develop control instructions that, once uploaded to the real physical robots, enable such real physical robots to autonomously perform reusable work primitives.

[Continued on next page]

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