

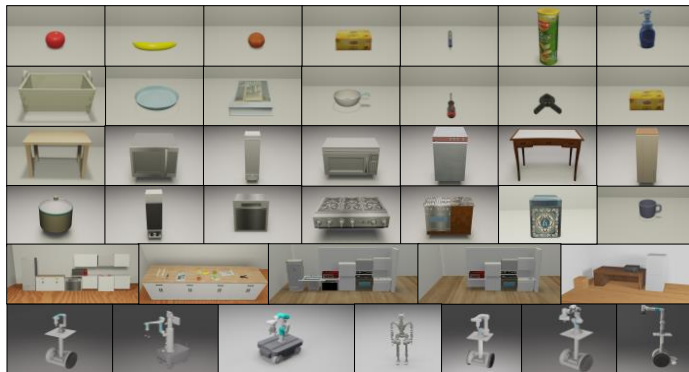
BestMan: A Modular Mobile Manipulator Platform for Embodied AI with Unified Simulation-Hardware APIs

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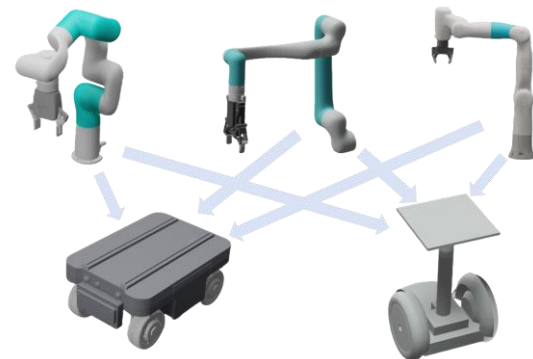
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Problems & Ideas

- Problems of existing Embodied AI platform:
 - The complexity of multilevel technical integration.
 - the insufficient modularity in existing platforms further limits expandability and algorithm integration.
 - Interface heterogeneity between simulation environments and physical robotic systems impedes algorithm deployment.
 - Adapting to diverse mobile manipulators presents substantial obstacles.
- Ideas: A modular mobile manipulator platform with unified simulation-hardware APIs that takes both user friendliness and hardware adaptability into account.



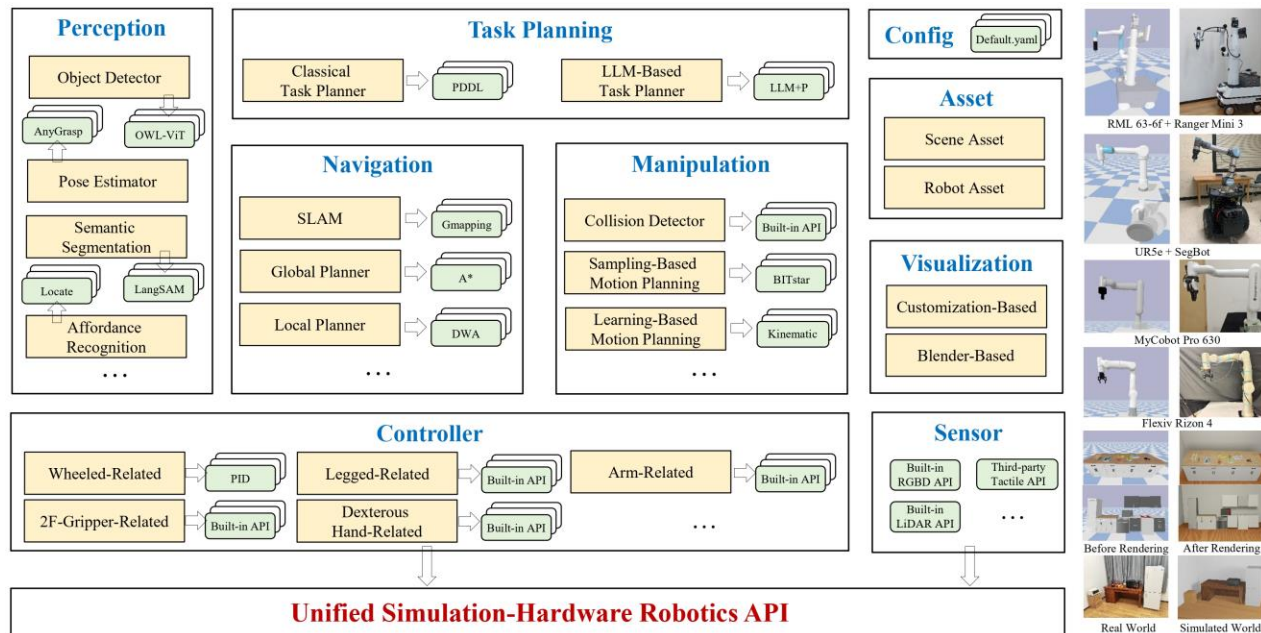
Rich interactive scenes and mobile robotic arm assets.



Free combination and replacement of hardware structure.

Main Contributions

- Contributions:
 - Integrated multilevel skill chain to address multilevel technical complexity.
 - Highly modular design for expandability and algorithm integration.
 - Unified interfaces for simulation and real devices to address interface heterogeneity.
 - Decoupling software from hardware to address hardware diversity.



Overview of Platform Architecture. The platform comprises ten major components (highlighted in blue and red).