

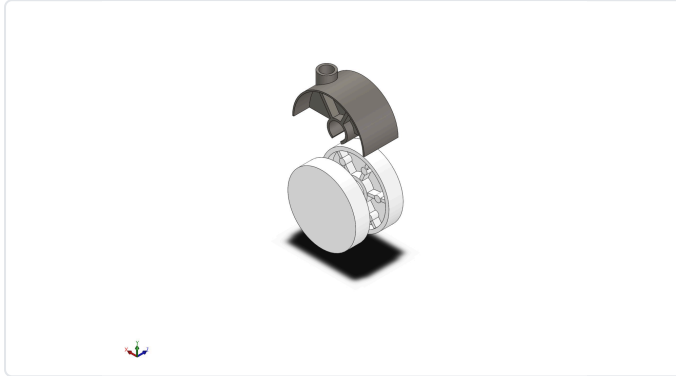
Automated Assembly Line for Chair Casters

University of Toronto, MIE221 (Manufacturing Engineering) · Spring 2022 · Team project

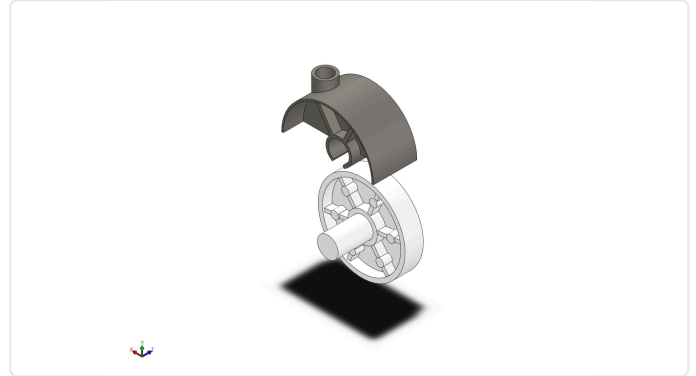
Design and CAD

A flexible automated assembly line to mass-produce two-inch chair casters from sub-inch parts.

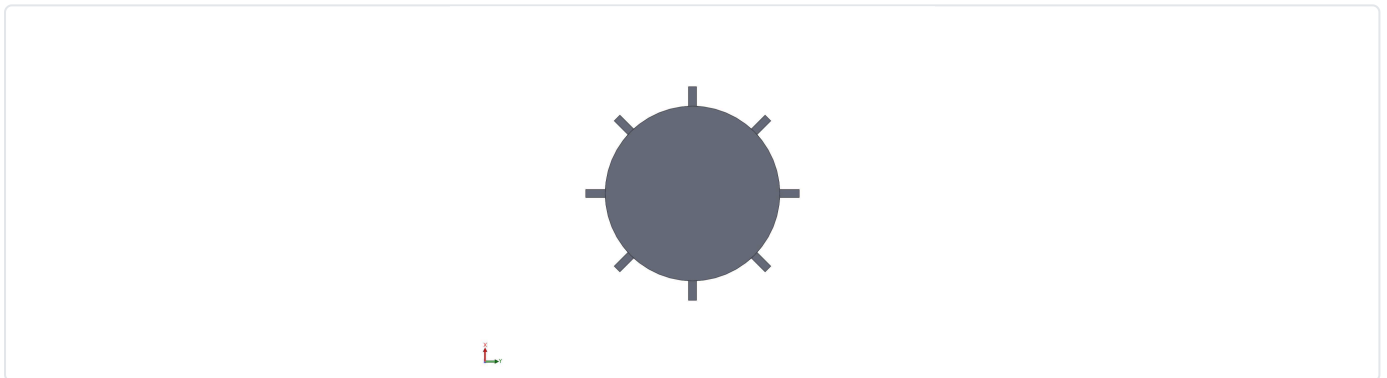
A manufacturing design proposal for an automated line that assembles two-inch chair casters whose components are all under 25 mm, kept flexible for future caster variants. The design sequences stations to orient and join the parts, backed by a SolidWorks model with exploded views.



Exploded SolidWorks view of the caster assembly.



Second exploded view of the caster components.



Rotary-table bolt-orientation station schematic.

Station design

A rotary index table orients the bolts, gravity and transfer lines feed the washers, a programmable positioner drives the nuts, and an indexed conveyor places and orients the wheels onto the housing. The caster and its parts were modeled in SolidWorks with exploded assembly views.

SELECTED REFERENCES

- "Rotary vs. Linear Indexing," Assembly Magazine.
- RNA Automation, Rotary Indexing Tables (technical reference).

Engineering portfolio brief. Course and team project; contribution as noted above.