

Automated Storage and Retrieval System (ASRS) Models

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Robotics & Mechatronics



Photo: QmcBeQ3G7DZCmY84uPgT — CC BY 4.0 — via Wikimedia Commons (Automated_Storage_and_Retrieval_System.jpg)

ASRS models are scaled automated warehouses where a gantry or shuttle moves along racks to store and retrieve items to order, demonstrating real logistics with motors, sensors and control code. They teach smart factory and supply chain automation.

Key Features

- Gantry crane or shuttle mechanics
- X, Y and Z move axes
- Rack positions with sensors
- Programmable store/retrieve logic
- Scale warehouse layouts

Typical Uses in the Workshop

- Simulate warehouse automation
- Teach coordinate positioning
- Code pick-and-place workflows
- Demonstrate smart factory logistics

Safe Operation

1. Calibrate the axis positions
2. Define the rack coordinates in code
3. Command a store or retrieve cycle
4. Watch the homing and movement
5. Refine the speeds and accuracy

SAFETY NOTES

- Keep hands clear of the moving gantry
- Check the axis limits work
- Keep the model on a stable surface
- Power off before manual moves
- Supervise the first runs

Maintenance & Consumables

- Clean the rails and carriages
- Lubricate the lead screws
- Check the belts and pulleys
- Tighten the mounting
- Update the control firmware

Specification & Buying Notes

A scale ASRS kit with steppers and sensors suits robotics clubs. Quality kits move repeatably; budget frames flex and lose position. Match the controller to the school's platform.