Algorithm

1. Start the system
2. Identify the location of stored products using a database or QR codes
3. Activate sensors to check inventory presence and warehouse status
4. When receiving a storage request:
   a. Receive the item at the input gate
   b. Determine the appropriate storage location (based on weight/size/temperature)
   c. Send the robot to move the item to the selected location
   d. Update the database

5. When receiving a retrieval request:
   a. Locate the item in the database
   b. Send the robot to that location
   c. Retrieve the item and deliver it to the output gate
   d. Update the database

6. In case of failure or obstacle:
   a. Stop the robot
   b. Send an alert to the central system
   c. Attempt restart or request maintenance

7. Repeat the steps for every storage or retrieval operation

8. End

Working envelope

The working envelope includes:
1- Dimensions: warehouse size
2- Covered areas:
   - Aisles between shelves
   - Loading/unloading points
   - Robot charging stations
3- Motion constraints:
   - Avoid collisions with shelves
   - Cannot exceed the speed limit inside the aisles
   - Respect human safe zones

Design & Sketch