

TẦNG GIAO DIỆN (Frontend)

Web Browser
(Blockly)

Mobile App
(React Native)

Chatbot AI
(GPT -OSS 120B)

WebSocket/REST

REST API

Groq API

TẦNG XỬ LÝ (BACKEND)

Python Flask Server (Port 5000)

ML Model
Controller

Script
Executor

Camera
Controller

History
Controller

Serial COM (115200 baud)

TẦNG PHẦN CỨNG (Hardware)

Arduino Uno
+ CNC Shield
+ A4988 Driver

Robot Arm
(3 NEMA 17)
+ Vacuum Pump

Webcam
(Camera)