

## 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 Flash 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)