C Simulation Modules - Quick Start Guide

This guide explains how to run the C simulation for the Smart Suit for Industrial Workers project. The simulation is divided into 4 interconnected modules that communicate via socket connections.

Overview of Modules

1. **Environment Module**: Simulates the industrial environment conditions
2. **Sensor Module**: Captures data from the simulated environment
3. **Control Module**: Processes sensor data and makes decisions
4. **Actuator Module**: Executes actions based on control decisions

Running the Simulation

Important: The modules must be started in the correct order to establish proper socket connections.

Step 1: Run the Environment Module

./environment.exe

Wait until you see "Environment module initialized. Waiting for connections..."

Step 2: Run the Sensor Module

./sensor.exe

Wait until you see "Sensor module connected. Ready to receive environment data..."

Step 3: Run the Control Module

./control.exe

Wait until you see "Control module connected. Processing sensor data..."

Step 4: Run the Actuator Module

./actuator.exe

You should see "Actuator module connected. System fully operational."

Monitoring the Simulation

- Each module will output status messages to its console window
- Keep all four console windows open to monitor the full simulation
- The simulation will run until manually terminated (Ctrl+C in each window)

Troubleshooting

- If a module fails to connect, ensure all previous modules are running

- Check firewall settings if socket connections are being blocked
- Each module must be run from the project's root directory