



PROCESS



PROJECT NAME	IoT Gateway Development for Smart Industrial Monitoring and Control
PROJECT DESCRIPTION	Design and develop an IoT gateway device for monitoring and controlling industrial equipment. The gateway will act as a bridge between various industrial sensors and actuators and a central cloud-based monitoring and control system.
OBJECTIVES	<ul style="list-style-type: none"> Develop a robust IoT gateway device capable of handling multiple industrial protocols (e.g., Modbus, OPC-UA, MQTT). Implement real-time data acquisition and processing capabilities. Ensure secure communication between the gateway and the cloud system. Develop a user-friendly web interface for monitoring and control.
SCOPE	<ul style="list-style-type: none"> Hardware design and development of the IoT gateway device. Software development for the gateway, including protocol stacks and data processing logic. Integration with the cloud-based monitoring and control system. Deployment and testing of the system in a simulated industrial environment.
DELIVERABLES	<ul style="list-style-type: none"> Hardware design documents and PCB layout. Source code for the gateway software. Cloud-based monitoring and control system interface. Test reports and deployment instructions.
TECHNOLOGIES	<ul style="list-style-type: none"> Hardware: Raspberry Pi 4, Arduino Uno, ESP8266, or similar microcontroller. Software: Python, C++, Java, or similar programming language. Cloud: AWS IoT, Azure IoT Hub, or similar cloud platform. Protocols: Modbus, OPC-UA, MQTT, HTTP, HTTPS.
TEAM	<ul style="list-style-type: none"> Project Manager Hardware Engineer Software Engineer Cloud Architect QA Engineer
BUDGET	Estimated total project cost: \$10,000 (including hardware, software licenses, and personnel costs).
RISKS	<ul style="list-style-type: none"> Integration challenges between different industrial protocols. Security vulnerabilities in the cloud-based system. Hardware component availability and cost fluctuations.



EQUIPMENT



COMMUNICATION



PACKING

