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Large Language Models For Verifiable Programming Of Plcs In Industrial Control Systems

Tech ID: 34212 / UC Case 2024-979-0

BRIEF DESCRIPTION

A user-guided iterative pipeline that significantly improves the reliability and quality of code generated by Large Language Models (LLMs) for industrial control systems (ICS).

FULL DESCRIPTION

LLM4PLC is an innovative system designed to overcome the limitations of current Large Language Models (LLMs) in generating code for Programmable Logic Controllers (PLCs) in Industrial Control Systems (ICS). By integrating user feedback and a suite of external verification tools, LLM4PLC enhances the generation capabilities of LLMs, ensuring the production of high-quality, reliable code suitable for industrial applications. This approach not only addresses the issue of execution guarantees but also provides support for niche programming languages essential in the industrial domain.

SUGGESTED USES

- Automated code generation for PLCs in ICS.
- Enhancement of reliability and efficiency in manufacturing and automation sectors.
- Streamlined programming for complex industrial machinery and systems.
- Development of verifiably correct programs for industrial applications

ADVANTAGES

- Significantly improves the success rate and quality of code generation for industrial applications.
- Incorporates user feedback and external verification tools for enhanced reliability.
- Streamlines the process of programming complex machinery, reducing time and effort.
- Offers a more reliable and efficient operation of industrial equipment.

PATENT STATUS

Patent Pending

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OTHER INFORMATION

CATEGORIZED AS

- » **Computer**
 - » Software
- » **Engineering**
 - » Robotics and Automation

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