

AI • Robotics • Humanoids

Controlled ENGLISH

A Simplified English Vocabulary to Write Software Documentation for Robotics

What is Controlled English?

Controlled English (CE) is adapted from the *ASD-STE100 Simplified Technical English (STE¹)* standard for aerospace. The CE program has a 1,000 word core vocabulary and a set of simple grammar rules. A robotics vocabulary was created to write **technical publications** for robots and humanoids. (See sample).

Starter Kit for Robotics

The **controlled vocabulary** is ideal for robotics software documentation, maintenance and operator training. The consistency of terminology prevents human error caused by miscommunication across multiple manufacturing sites, cultures and languages. Example, Japan and USA.

The **Starter kit** includes an allowance for text mining to add product-specific robotics and humanoid terms and abbreviations. The SMART software uses AI to validate the text through an *edit-in-place* feature during writing.

Controlled English Savings

A recent automotive study estimated the **cost of downtime** for one robot is a minimum of **US\$22,000 per hour**. The use of Controlled English documentation prevents errors.

Advantages of Controlled English

- Minimizes human errors caused by miscommunication.
- Eliminates rework caused by incorrect software instructions.
- Standardizes robotics terminology and identifies confusing abbreviations, acronyms and language translation problems.
- Assists readers with Limited English Proficiency (LEP).
- Improves skills training and workforce development.
- Assists with STEM education and employee onboarding.
- Creates documentation that is ideal for global readers.

The Company

Smart Communications, Inc., New York City, has 20 years of experience in Artificial Intelligence (AI) and Natural Language Processing (NLP). The company is a leading supplier of software tools to global manufacturers in many industries. SMART software is made in the USA.

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What is the MAXit Checker?

An AI-powered plug-in for the publishing systems shown below. **MAXit** uses approximately 19,000+ rules (AI *inferences*) that check grammar, vocabulary, syntax, usage, data quality and style.

MAXit has a unique *edit-in-place* feature to navigate .xml, Microsoft Word, Markdown and other formats.



Versions of the MAXit Checker

- Microsoft Word (Add-In for Word)
- Adobe FrameMaker (Plug-in for 10.0 to 2022)
- PTC Arbortext Editor (Plug-in for 6.x to 8.x)
- JustSystems XMetaL (Plug-in for XMetaL)

Ask us about our API for integration to other publishing systems.
Contact sales@smartny.com for licenses, services and costs.



**Lexicon
Manager**

This tool lets users add new terms in seconds and manages the custom dictionaries for **MAXit Checker**.

This example text is from a Robot maintenance manual. The MAXit Checker uses AI rules and color codes to mark errors. Curious? Ask our experts to explain the colors and errors.

The power supply **wiring** to the robot must be **sufficiently fused** and **if necessary**, it must **be possible** to disconnect it manually from the **mains power**.

The power to the robot must be **turned off** with the main switch and the **mains power disconnected** when performing work inside the controller cabinet. **Lock and tag shall be considered**. Harnesses between controller and manipulator **shall be fixed and protected** to avoid **tripping** and wear.

Wherever possible, **poweron/off** or **rebooting** the robot controller **shall be performed with** all persons outside the **safeguarded** space.

Make sure the power supply fuses are correct. These fuses must have a manual disconnect switch in the main power cabinet.

Controlled English
Before you do work inside the controller cabinet, disconnect the power supply to the robot. Apply a **Lock Out/Tag Out** device. Make sure all wiring harnesses on the controller and manipulator have protection and can not move.

WARNING! During robot maintenance, make sure all persons are in the safety zone.



Robotics Complexity | Simplified