# Exploring Symbolic Computation With SymPy + Symrb → [ Using USB Quantum Device/QRNG/Services ] → An Interesting Suggestion of Practical Importance based on SymEngine & ANTLR w.r.t Testing Smart Devices + IoT + HPC Systems.

Nirmal – Informatics R&D     USA/UK/Israel/BRICS Group.
                Current Member     ante Inst UTD Dallas TX USA.
                    Contact_info     [hmfg2014@gmail.com](mailto:hmfg2014@gmail.com)

**[I] Idea + Inspiration + Introduction Could be Useful in Dealing With :**

"
* simulation and modeling of quantum computation;
* algebraic methods in quantum cryptography;
* quantifying quantum entanglement;
* quantum walks and their utilization for modeling quantum networks;
* quantum automata and algebraic groups;
* logic and algebraic structures from quantum computation;
* quantum programming languages."

[ **Source** - https://www.quantiki.org/conference/computer-algebra-quantum-computing-and-quantum-information-theory ]

"Programmers run into parsing problems all the time. Whether it's a data format like JSON, a network protocol like SMTP, a server configuration file for Apache, a PostScript/PDF file, or a simple spreadsheet macro language —ANTLR v4 and this book will demystify the process. ANTLR v4 has been rewritten from scratch to make it easier than ever to build parsers and the language applications built on top. This completely rewritten new edition of the bestselling *Definitive ANTLR Reference* shows you how to take advantage of these new features."

[ **Source** - https://pragprog.com/titles/tpantlr2/the-definitive-antlr-4-reference/#resources ]

"We present a model checking procedure and its implementation for the automatic verification of embedded systems. Systems are represented by hybrid automata - machines with finite control and real-valued variables modeling continuous environment parameters such as time, pressure, and temperature. System properties are specified in a real-time temporal logic and verified by symbolic computation. The verification procedure, implemented in Mathematica, is used to prove digital controllers and distributed algorithms correct. The verifier checks safety, liveness, time-bounded, and duration properties of hybrid automata.< >"

[ Source - https://ieeexplore.ieee.org/document/393520 ]

"SymEngine is a standalone fast C++ symbolic manipulation library. Optional thin wrappers allow usage of the library from other languages like python ruby haskell etc….

[ **Source** - https://github.com/symengine/symengine ]

**[II] Informatics Framework Using Python + Ruby + C++ :**

Very EASY. Check the TITLE and derive your own Informatics Framework. We presented a number of Frameworks (((via))) our Short Notes on Vixra.org. Thanks.

**[III] Reading Materials:**

[a] https://github.com/tejdnk-2019-ShortNotes

**[IV] Acknowledgment/s:**

Sincere Thanks to all WHO made this happen in my LIFE. Inspiring Others is Always GOOD.
Non-Profit R&D.

**[ THE END ]**