Development of a Chatbot Application for Cryogenic System in Taiwan Photon Source

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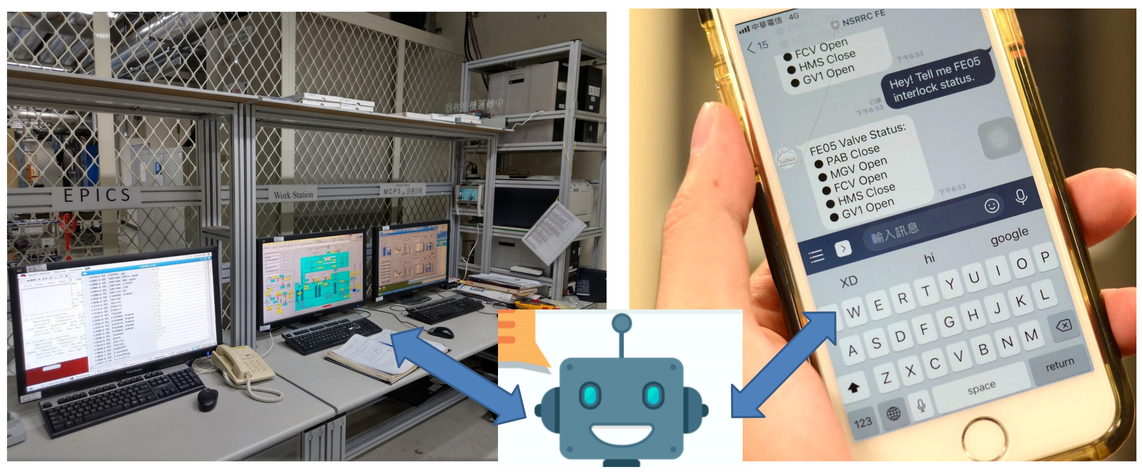
Abstract The vacuum group of NSRRC developed a task-oriented chatbot application based on LINE message platform in 2018. LINE message is a cross-platform communication software that can be easily used on mobile phone, tablets, and PC. This interactive user interface can not only reply the real-time status of sub-systems when the user has a query but also proactively report alert. The TPS cryogenic system also introduces this application which likes a virtual assistant to help cryogenic engineer management system more efficiency. In this paper we present the configuration and operation of this task-oriented chatbot application for cryogenic system.

Graphic User Interface vs. Conversational User Interfaces

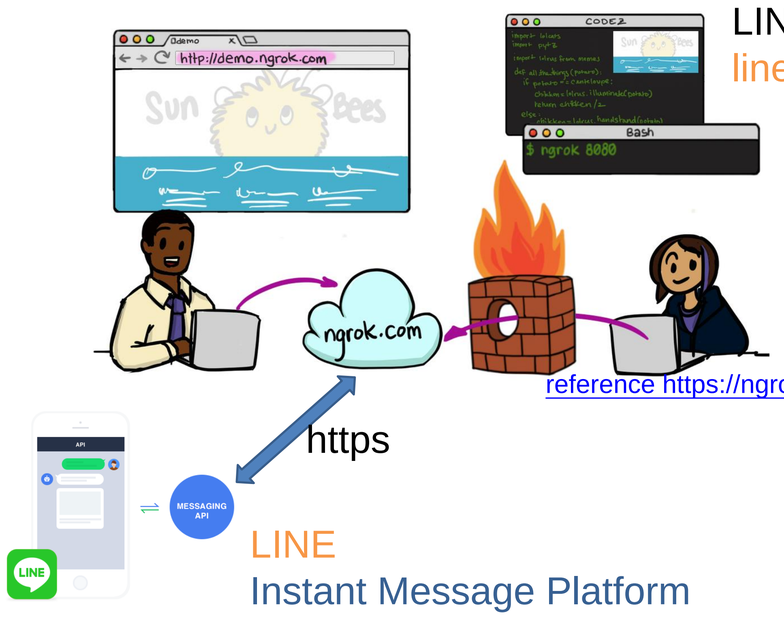
TPS Cryogenic Control HMI and GUI



Chatbot Application

Implement Tools

Third party web server
Ngrok

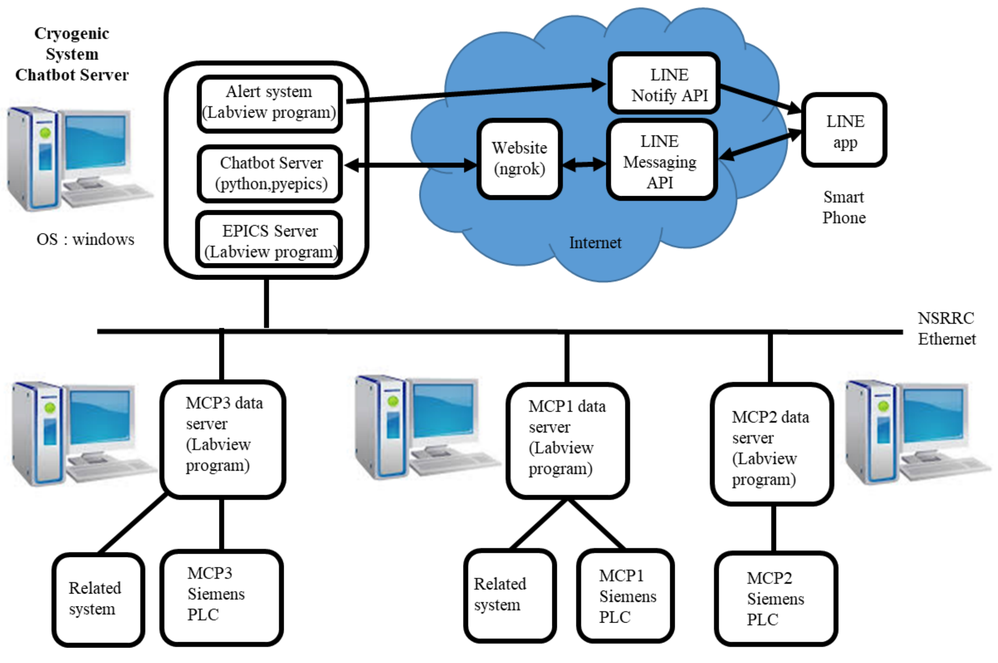


reference https://ngrok.com/product

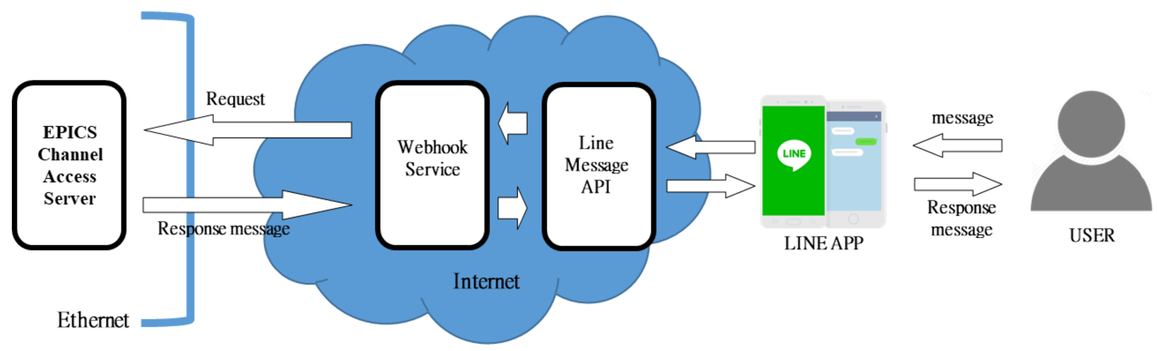
Python Library
Webhook: Flask
EPICS: PyEPICS
LINE Message API:
line-bot-sdk-python

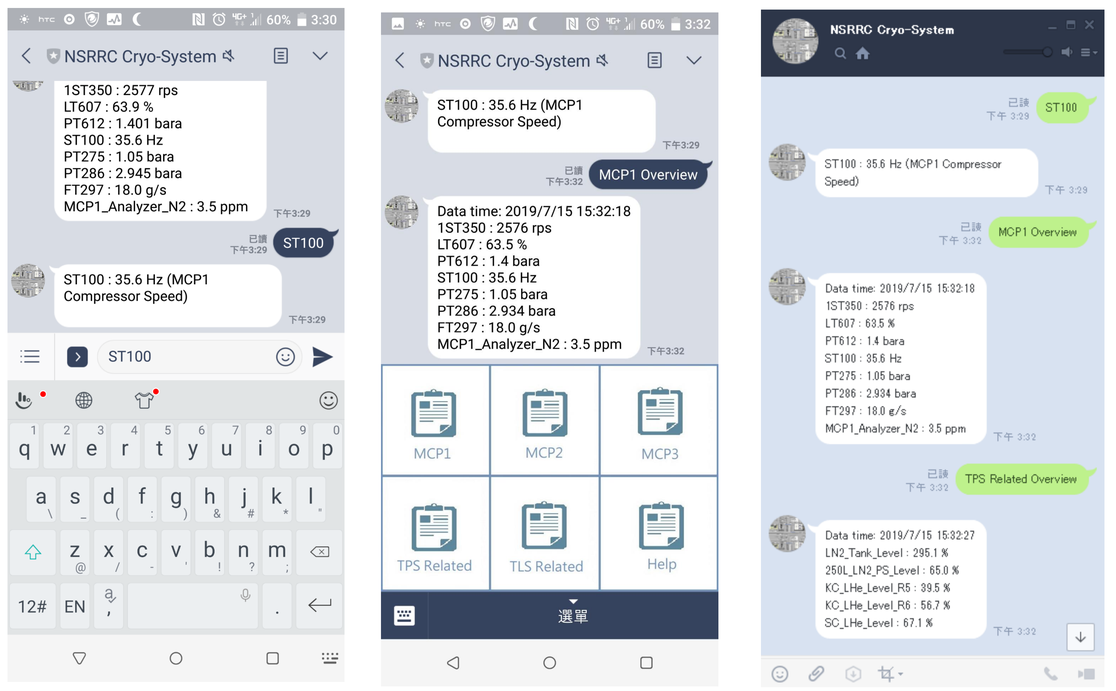
LINE
Instant Message Platform

NSRRC Cryogenic system data access Network Architecture



Chatbot architecture for NSRRC cryogenic system.





(A) (B) (C)

Screen shot of the Chatbot application:
(A) Query single signal information
(B) Query overview system status of MCP1 using rich menu
(C) Query overview system status from LINE PC version

LINE notify architecture for NSRRC cryogenic system