PROJECT 1 – X-o-Bot: A generic framework for conversational agents

Conversational agents have become very common for websites and corporate services to help customers/users find quickly answers to their questions without depending on a customer support person and possible waiting queues. Advances in both Machine Learning, Cognitive Services and IoT (Internet of Things) made it possible to diffuse the technologies in the home users segment at very low cost.

Similar principles can be applied to education, with courses and students' support as possible outlets for the technology: students often have simple questions that do not need to rely on the instructor to provide answers for. The answers are often already available in the corpus of data available for that course or in the knowledge database for a specific service.

This project focuses on the creation of a generic and modular architecture for conversational agents which is based on three core components:

1. A knowledge extraction/building module (which includes search, ingestion and knowledge representation)
2. A dialog builder (which can leverage on existing APIs and theories about interaction)
3. An Application/UI component which allows to 'plug' the agent into multiple channels (from the simple Web chat, using other communication tools and other environments/tools – from games to VR, from assistants like Google Assistant or Amazon Alexa to robotic interfaces)

A Python-based solution is preferred (but not required) using:

1) modern development frameworks,

2) cloud-based architectures, and

3) building a solution which leverages on existing services/APIs without creating a full dependency on the selected tools.

It is essential that system requirements are refined with the stakeholders and that the engineering of the system is thought through properly before building the individual components.