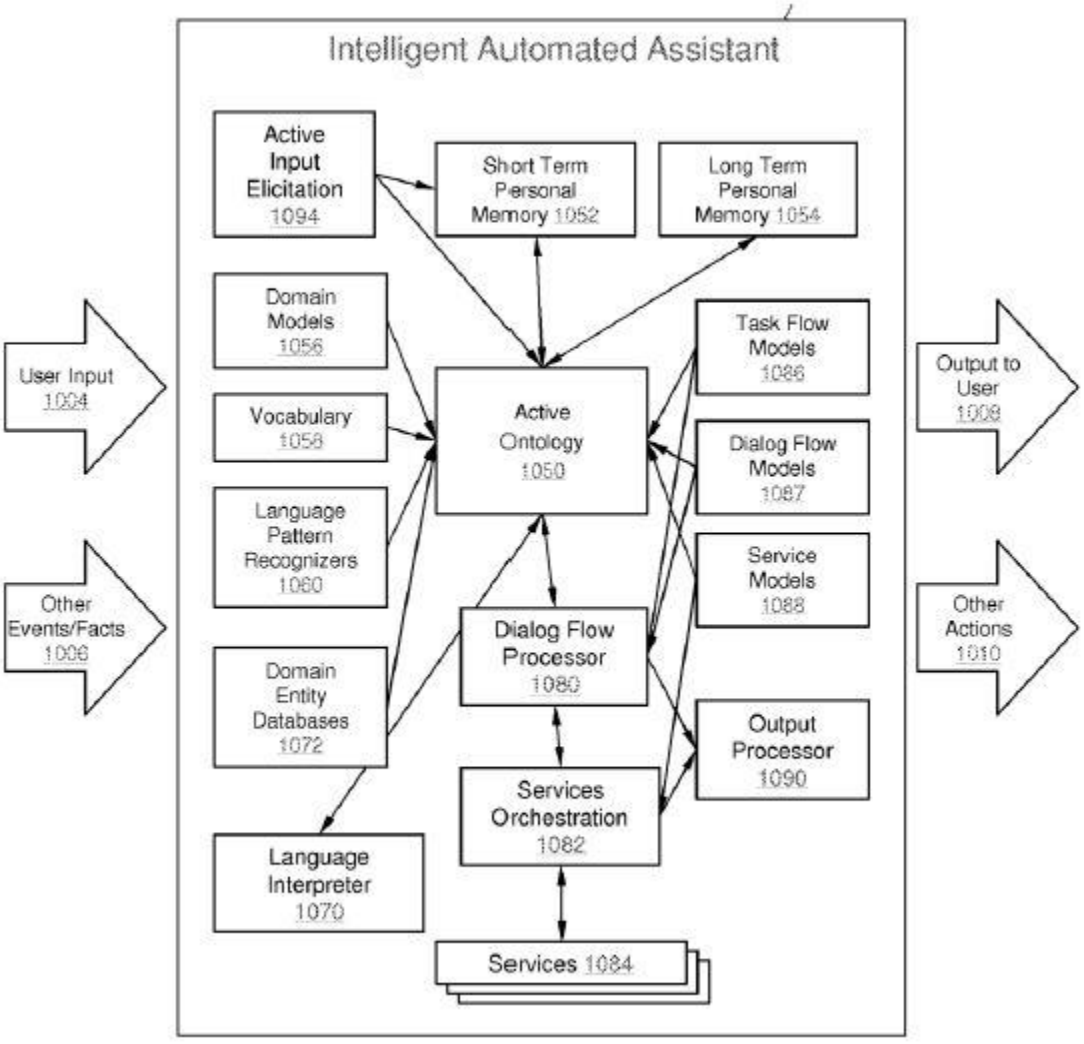
Appendix

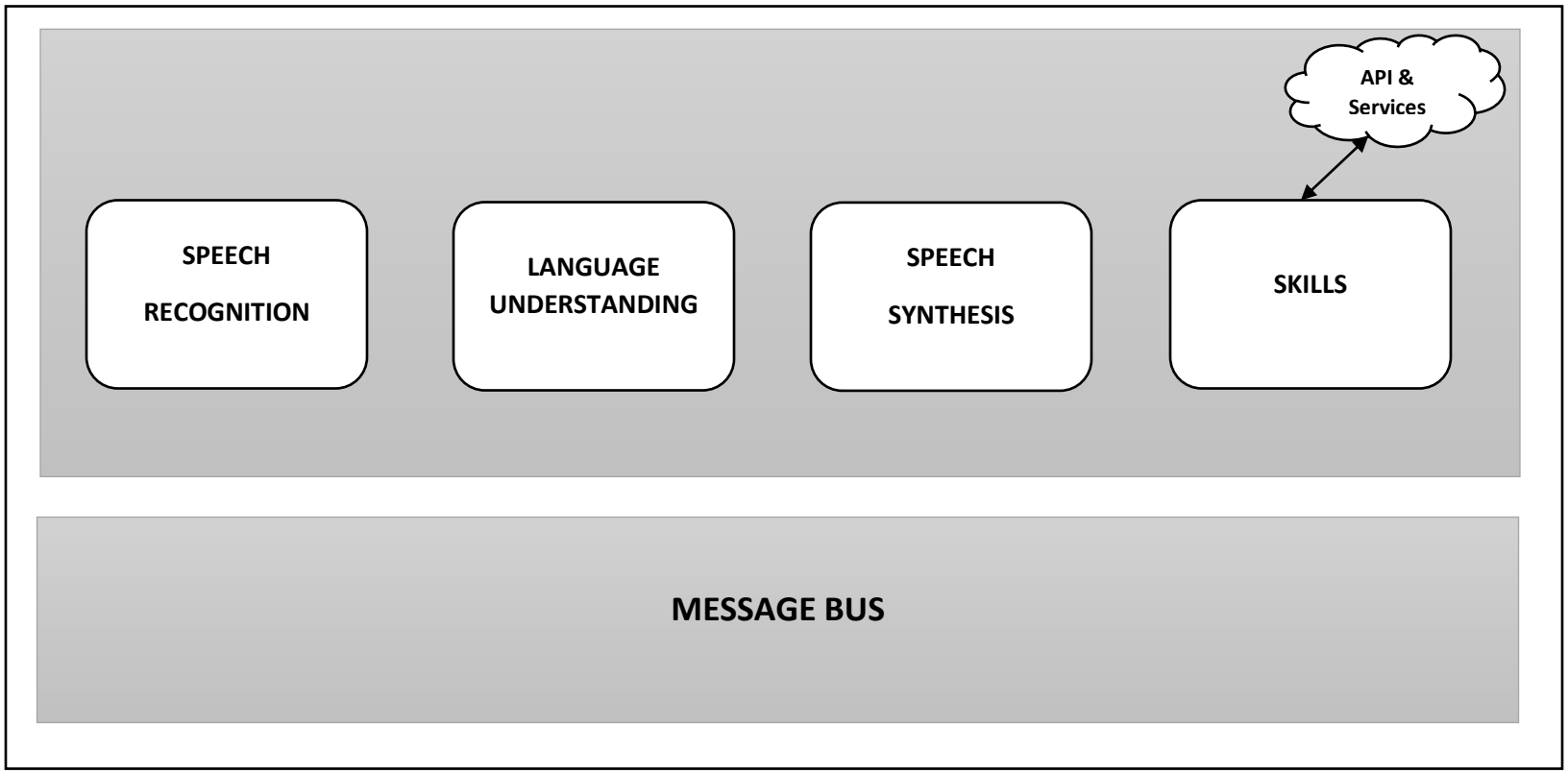
Appendix A



Siri provides a variety of services some of which are illustrated in Figure. Many of the services rely on third party sources such as Yelp, Bing, Wolfram Alpha, Wikipedia, Rotten Tomatoes and others. This information is combined with personal profile information drawn from a user's contacts, calendar, music library, email etc., The final ingredients are temporal, spatial, location and other sensor derived data. All of this is combined with automatic speech recognition (ASR) and text to speech (TTS) technology allowing the user to interact with the system in a natural, conversational manner.

Appendix B

Here is an illustration of the projected platform that will be developed:



Projected Core Platform Architecture

Appendix C

Comparison Table of Intelligent Personal Assistant

Intelligent personal assistant	Developer	Free software	Free and open-source hardware	HDMI out	External I/O	IOT	Chromecast integration	Smart phone app	Always on	Unit to unit voice channel
Assistant	Speaktoit	No	N/A	N/A	N/A	No	No	Yes	No	N/A
Alexa (a.k.a. Echo)	Amazon.com	No	No	No	No	Yes	No	Yes	Yes	?
Bixby	Samsung Electronics	No	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BlackBerry Assistant	BlackBerry Limited	No	N/A	N/A	N/A	No	No	Yes	No	N/A
Braina	Brainasoft	No	N/A	N/A	N/A	No	No	Yes	No	N/A
Cortana	Microsoft	No	N/A	N/A	N/A	Yes	No	Yes	Yes	N/A
Evi	Amazon.com True Knowledge	No	N/A	N/A	N/A	No	No	Yes	No	N/A
Google Assistant	Google	No	N/A	N/A	N/A	Yes	No	Yes	Yes	N/A
Google Now	Google	No	N/A	N/A	N/A	Yes	Yes	Yes	Yes	N/A
M	Facebook									
Sherpa	Sherpa Europe SL	No	N/A	N/A	N/A	Yes	No	Yes	Yes	N/A
SILVIA	Cognitive Code	No	N/A	N/A	N/A	No	No	Yes	No	N/A
Siri	Apple Inc.	No	N/A	N/A	N/A	Yes	No	Yes	Yes	N/A
Viv	Samsung Electronics	No	N/A	N/A	N/A	Yes	No	Yes	No	N/A
Nina	Nuance	No								

A table from Wikipedia that compares the available Intelligent Personal Assistants as of today.

Appendix D

Comparison Table of Artificial Intelligent Platform

Development Platforms		License	Use	Languages	Developer	More Information
SILVIA	A flexible, lightweight system for conversational intelligence. It can learn, understand and interacts in an indiscernibly human way, to solve problems and deliver operational efficiencies like never possible before	Proprietary commercial software (initially released on January 1, 2008)	Being used in call center, smart phones(Iphone and androids),voice search or other voice-related applications,	English	Cognitive Code Inc.	http://silvia4u.info/silvia/
Telemedicine Platform (e visit)	Give physicians an organized, secure system for practicing medicine remotely, tracking patient health data, sharing medical records with consulting physicians, documenting all remote patient visits, charging patients and getting reimbursed from third party payers, and so much more.	$99.00/month (founded : 2013)	Health	English	eVisit	https://evisit.com/telemedicine-platform/
Teneo	A development and analytics platform from Artificial Solutions, Teneo using NLI to allow people to interact with any connected device using everyday conversational speech, text, touch or gesture. The Teneo Platform learns and understands; and then applies this knowledge to real user	Founded : June 2010 (not for commercial)	banks and fintech, telecoms, travel, leisure, retail, utilities and manufacturing, (can operate across any	Works in 35 languages	Artificial Solutions	**http://www.artificial-solutions.com/teneo/**

	interactions such as resolving queries, answering questions, recommending products or providing links to information and external resources.		device, OS or channel)			
API.AI (formerly Speaktoit	A platform designed to enable software developers and companies to collaborate in making voice-activated interfaces, Api.AI integrates AI technology to deliver services in the context of consumer-facing tools.	Free https://api.ai/pricing (founded on 2010) Acquired by Google in 2016	Android , windows smartphones ,Conversational Platform for bots, applications, services, and devices.	Brazilian Portuguese, Chinese (Cantonese), Chinese (Simplified), Chinese (Traditional), English, Dutch, French, German, Italian, Japanese, Korean, Portuguese, Russian, Spanish, Ukrainian.	Speaktoit LLC	https://api.ai/
Indigo	a cloud-based, cross-platform personal assistant for Android and Windows Phone 8 (hands-on)	Not yet released	voice commands, help day to day issues such as finding out what the weather is, finding addresses, check email and appointments, update	English	Artificial solutions	www.hello-indigo.com.

			Facebook and send Tweets			
Viv	an artificial intelligence platform that enables developers to distribute their products through an intelligent, conversational interface. It's the simplest way for the world to interact with devices, services and things everywhere. Viv is taught by the world, knows more than it is taught, and learns every day.	Not yet released (open to all services, for all devices, personalized for customers)	has been billed as a more extensible, powerful version of Siri, the approach is offering the ability to connect with third-party merchants and vendors so that it can execute on requests to purchase goods or book reservations. Viv allows third-party	English	Six Five Labs , Inc	http://viv.ai/

Appendix E

Message Types for the Message Bus

Message Type	Sent from	Purpose	Contents	Example Metadata
detach_intent	The detach function of InteloraSkill	Detaches the intent specified	The name of the intent to be detached	{'intent_name': 'HelloWorldIntent'}
any intent	The intent skill after determining the intent of an utterance.	Calls the handler for that intent. Note that the metadata needed depends on the skill.	The name of the intent and the needed metadata	{"HelloWorldKeyword": "hello world", "intent_type": "HelloWorldIntent", "utterance": "hello world", "confidence": 1.0, "target": null}
intent_failure	The intent skill after failing to determine the intent of an utterance	Sends the utterance to the Wolfram Alpha skill	The utterance	{"utterance": 'hello world'}
message	The messagebus client after receiving a message	Logs the json dumps of the message in the terminal	A Message object	A Message object
intelorat.media.stop	Any skill that inherits from the media base class	Stop anything playing on a media skill	The skill where the message originated	{'origin': 'MediaSkill'}
intelora.paired	The pairing skill	Used to give updates on pairing process	Whether the device is paired or not	{'paired': True}
intelora.stop	The stop skill	Calls the stopfunction of any skill currently running.	N/A	N/A
recognizer_loop:audio_output_start	The speech service	Show when Intelora starts talking	N/A	N/A

Message Type	Sent from	Purpose	Contents	Example Metadata
recognizer_loop:audio_output_end	The speech service	Show when Intelora stops talking	N/A	N/A
recognizer_loop:record_begin	The listener after the wake word is detected	Show when Intelora starts recording	N/A	N/A
recognizer_loop:record_end	The listener after finishing recording	Show when Intelora stops recording	N/A	N/A
recognizer_loop:sleep	The sleep skill	Causes the listener to not send audio until Hey Intelora, wake up is heard	N/A	N/A
recognizer_loop:utterance	The listener, once the STT has transcribed the audio	The intent skill parses it to determine intent	The words transcribed by the STT service	{'utterances': 'Hello world','session': 'some_unique_id'}
recognizer_loop:wakeword	The listener	Show when the wakeword was detected	What the wakeword is	{'utterance': 'Hey Intelora ', 'session': 'some_unique_id'}
register_intent	Each skill that registers an intent	Registers the intent with the intent skill	The intent and any other needed information for the skill	{"at_least_one": [], "requires": [["HelloWorldKeyword", "HelloWorldKeyword"]], "optional": [], "name": "HelloWorldIntent"}
register_vocab	Each skill that registers vocab	Registers the vocab with the intent skill	The vocab phrase and what type of keyword it is	{"start": "hello world", "end": "HelloWorldKeyword"}
speak	Any part of the core that needs to say something	Speaks the utterance	The phrase to speak	{"utterance": "Hello"}