Voice Controlled Personal Assistant Device and Controlling IOT Devices

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Overview

What's The Problem

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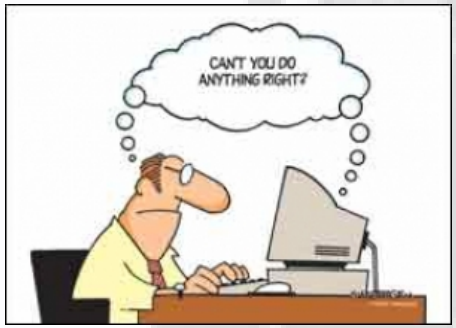

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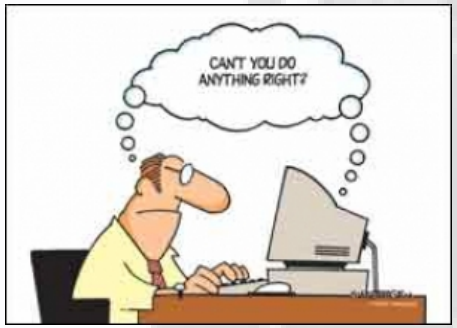

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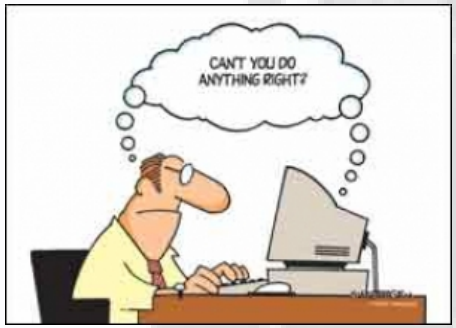

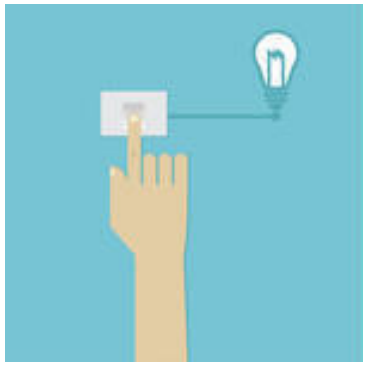

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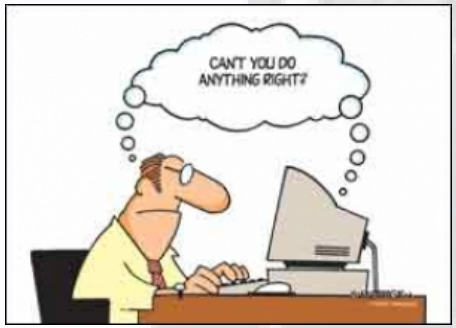

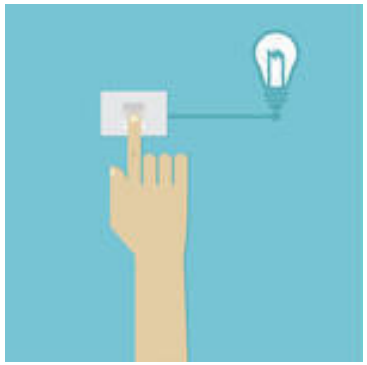

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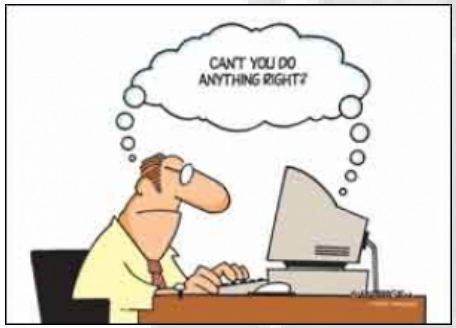

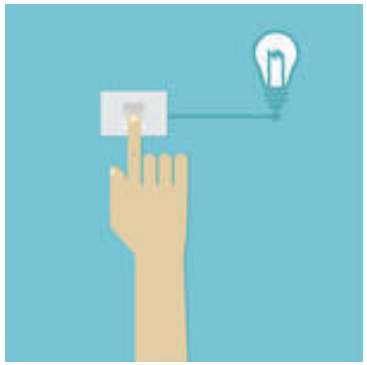

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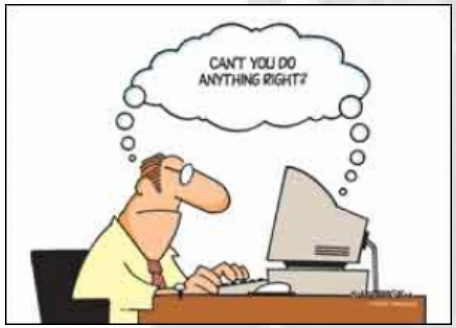

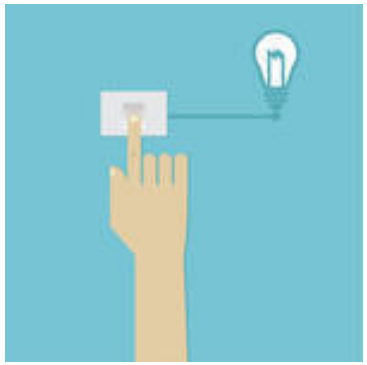

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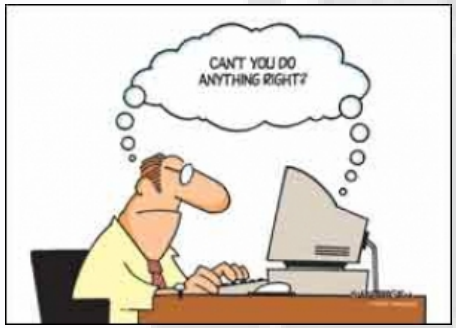
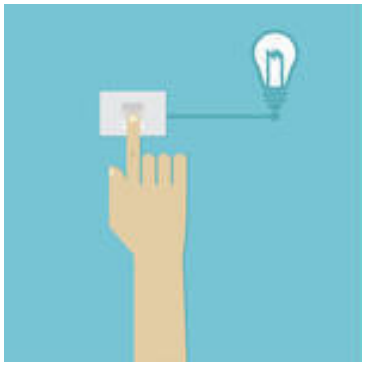
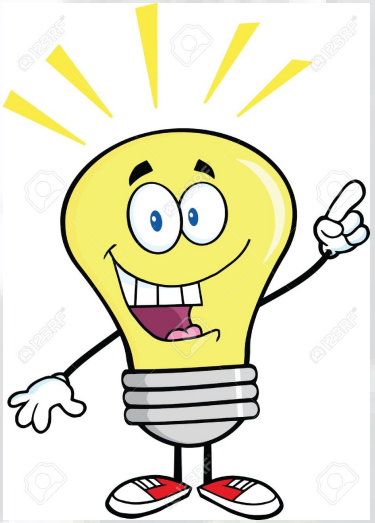
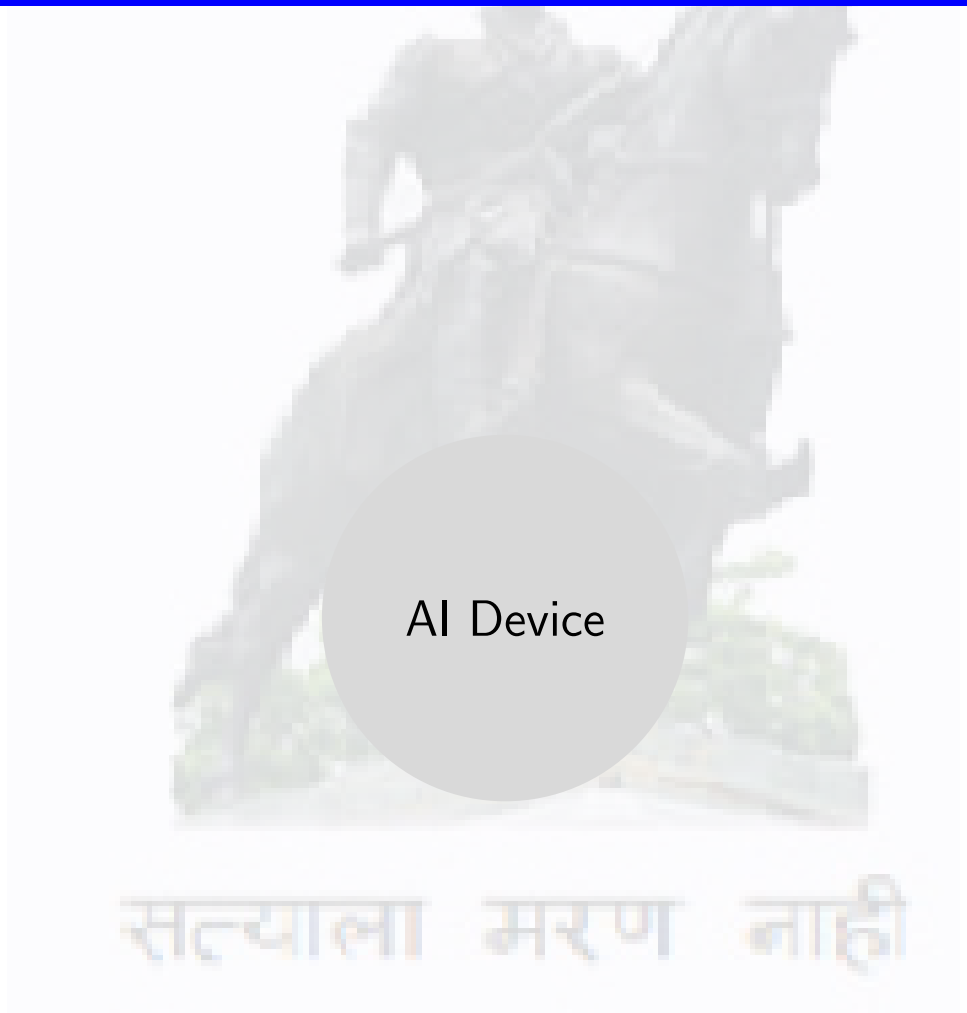






What if we could have one solution to all these problems?

Motivation



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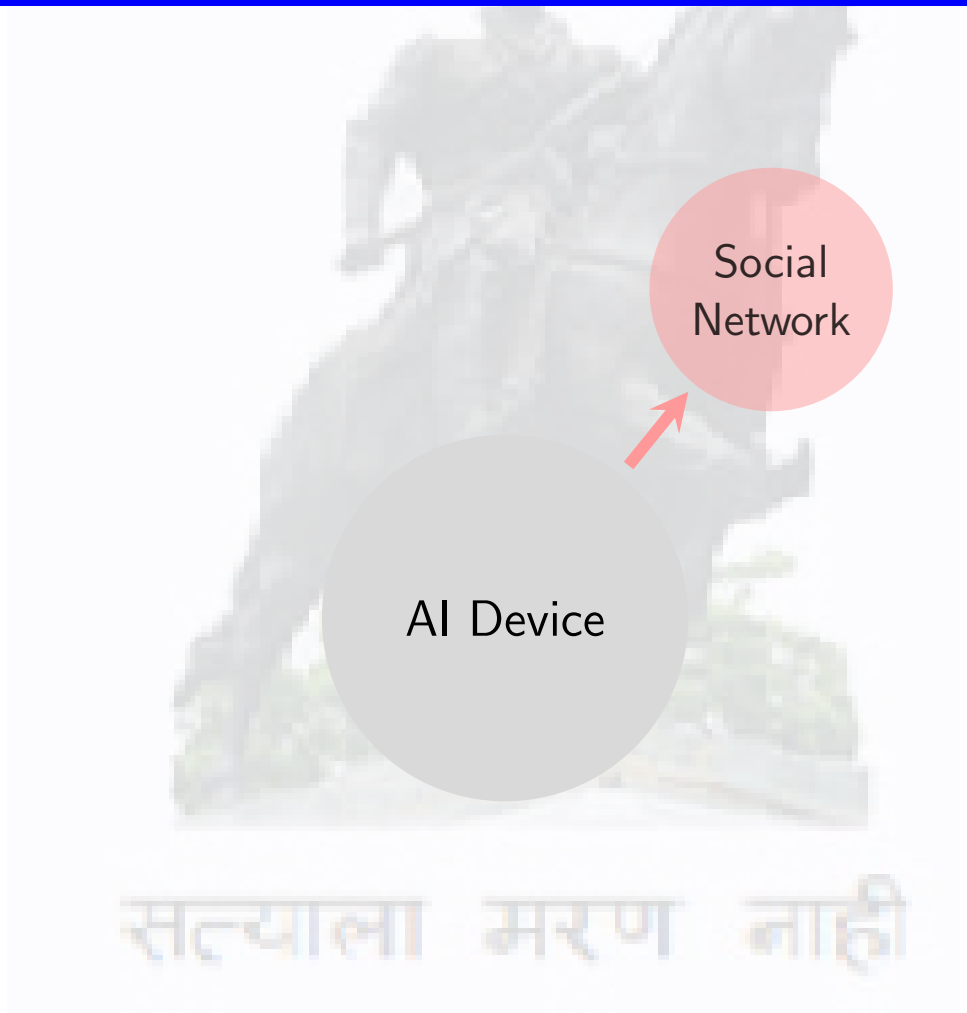

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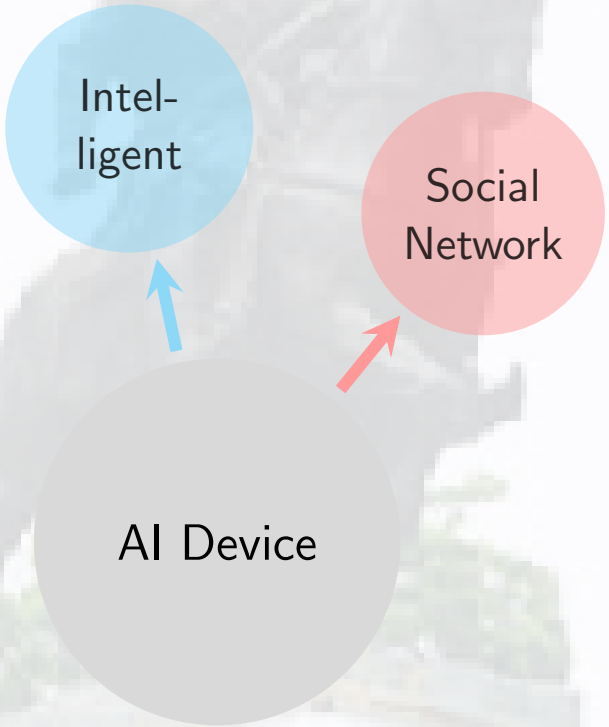

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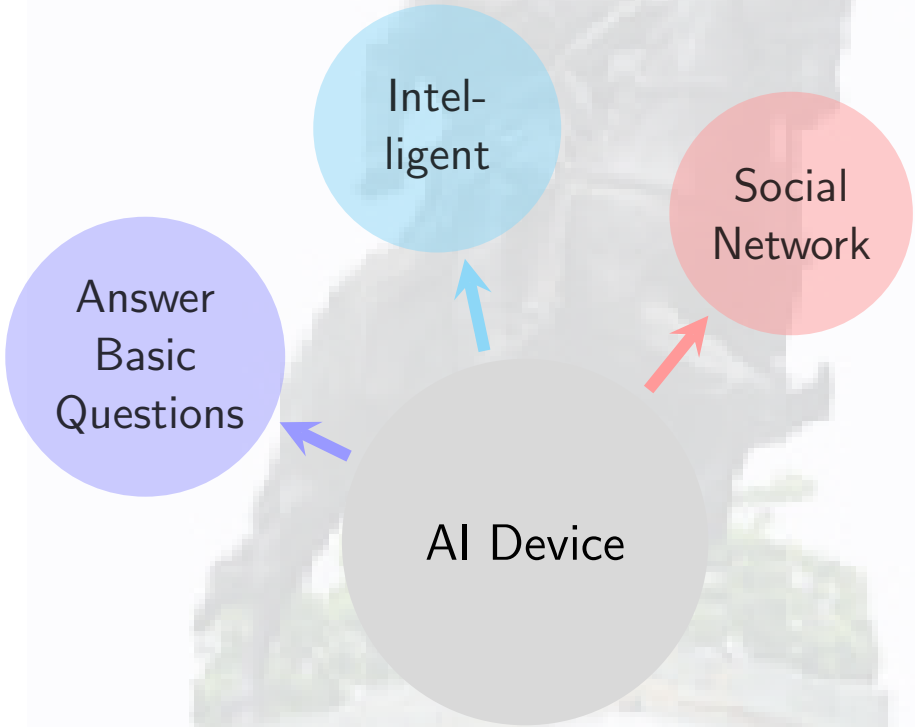
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Answer
Basic
Questions
AI Device

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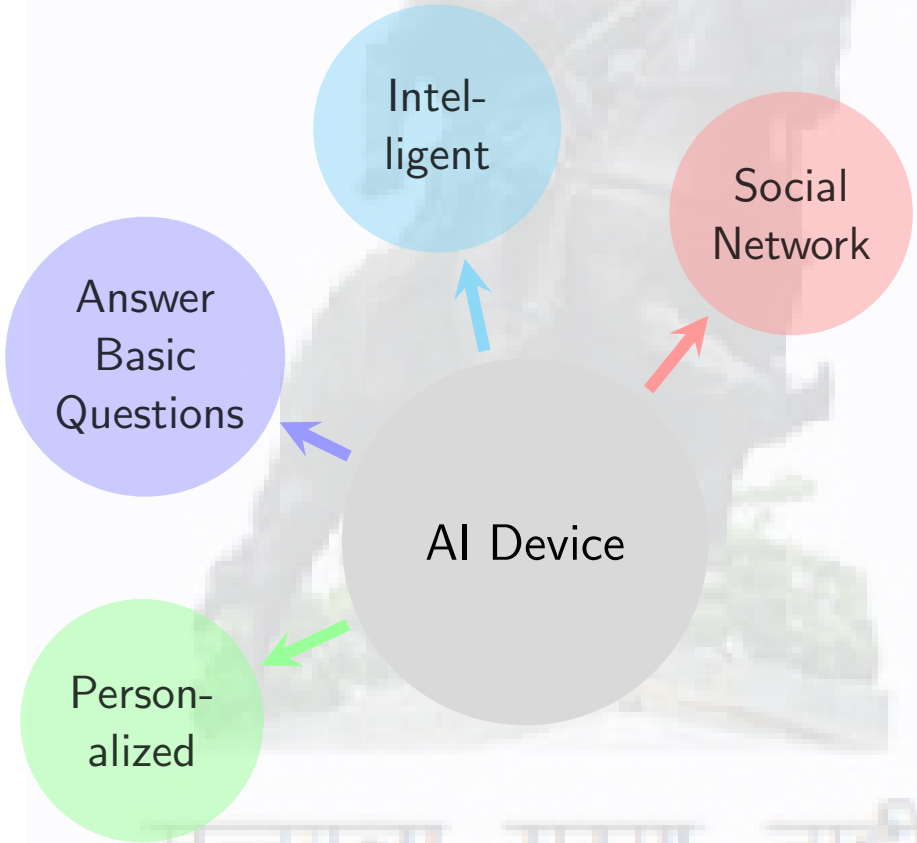
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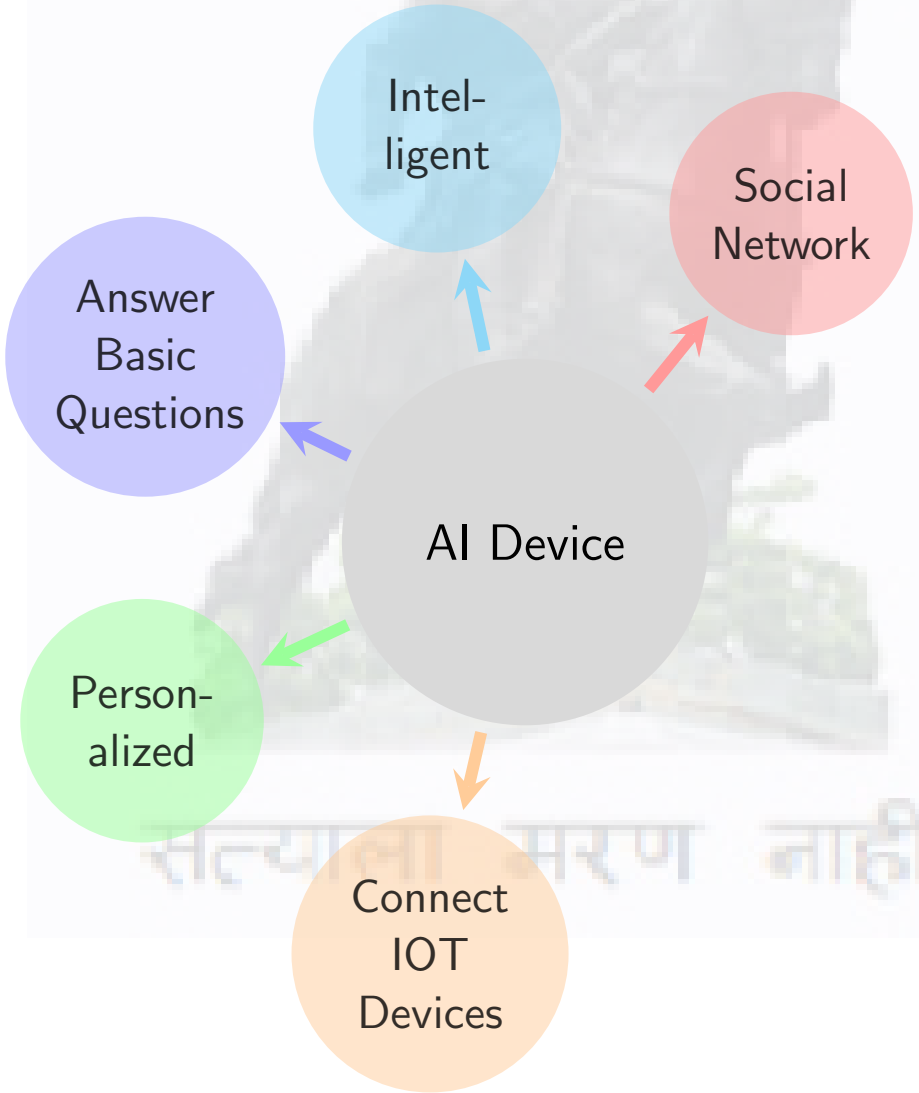
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Devices

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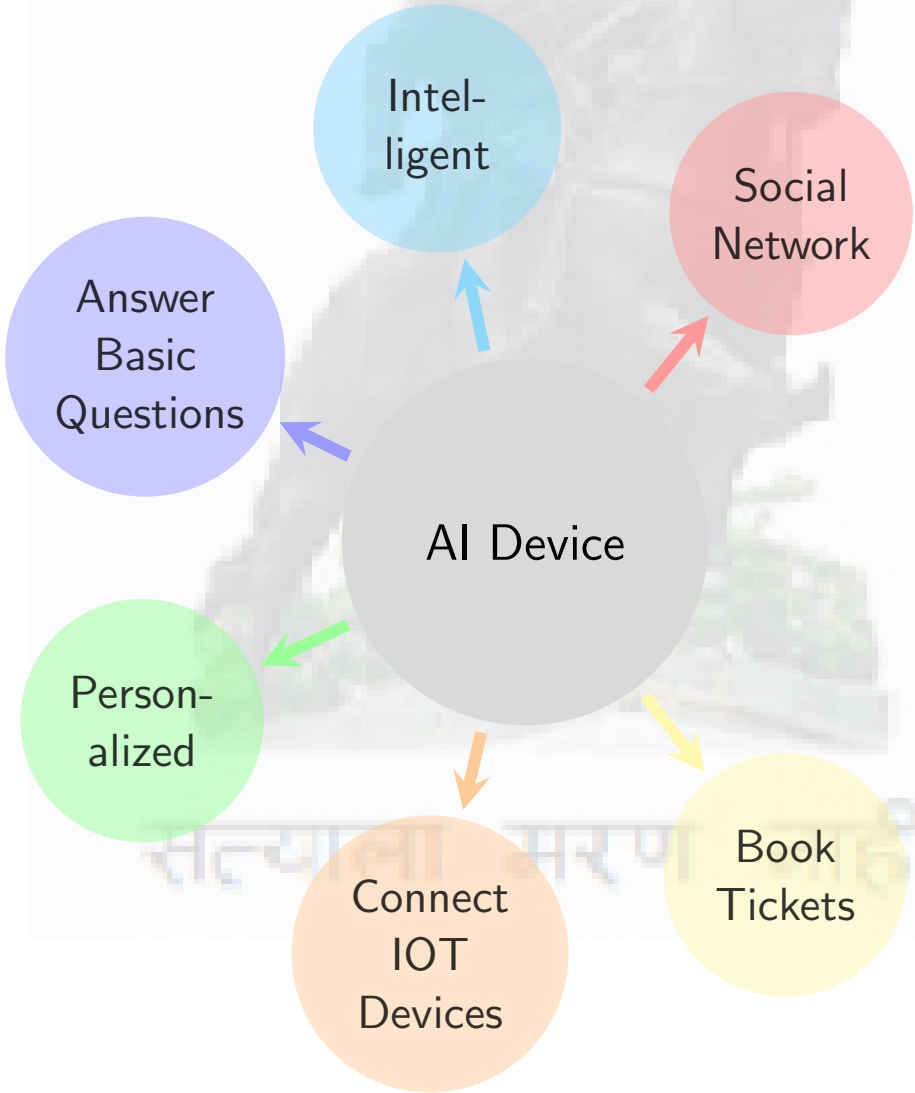
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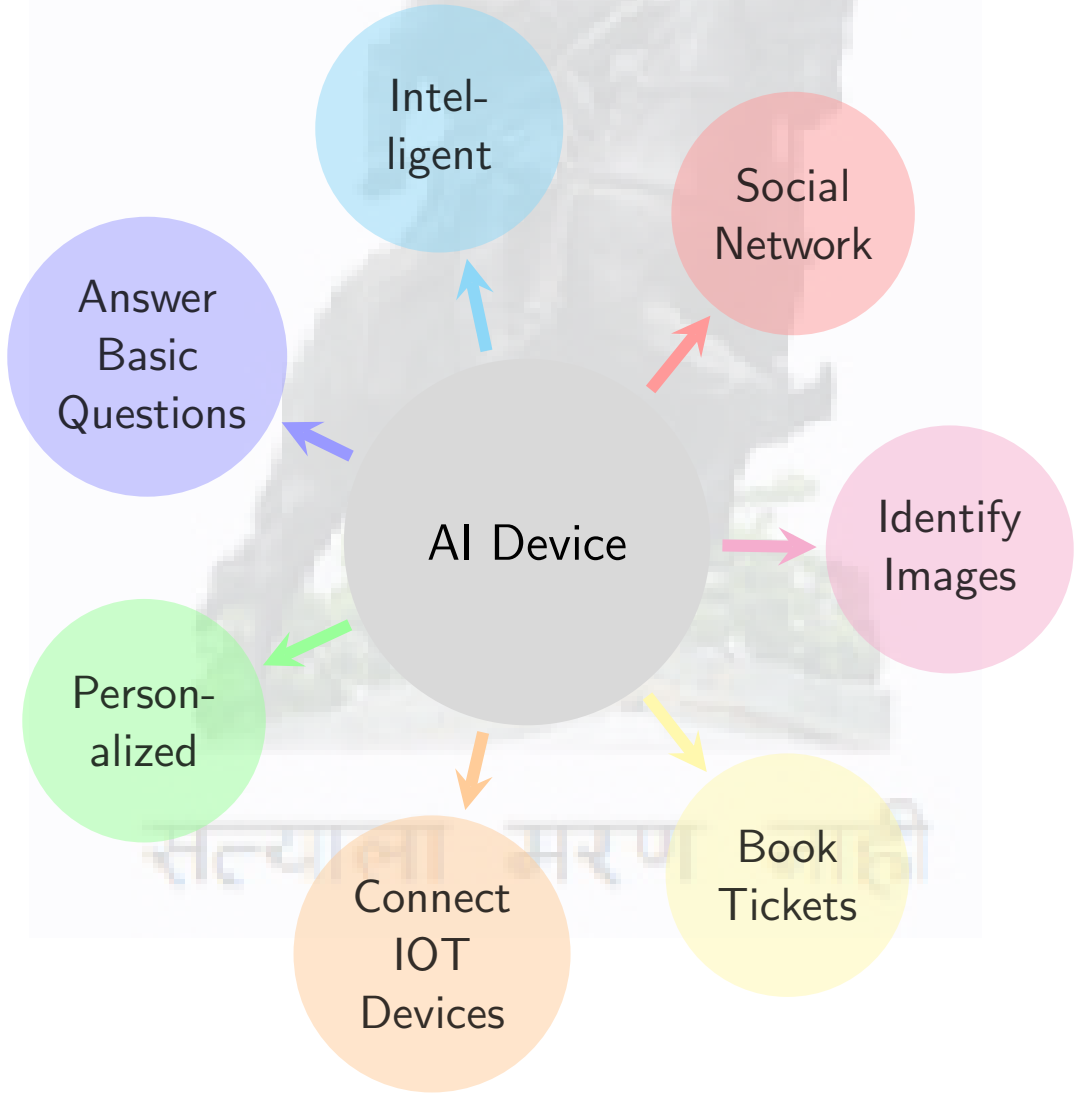
Intel-
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Social
Network
Answer
Basic
Questions
AI Device
Identify
Images
Person-
alized
Book
Tickets
Connect
IOT
Devices

Problem Statement

Statement

- To build a Personalised Intelligent Assistant Device that can help humans with the basic task of day to day regimen using their voice.
- Also to ease the interface of the IOT devices in the surrounding of the Intelligent Device.

Amazon Alexa v/s Ivee Sleek v/s Athom Homey

Amazon Alexa	Ivee Sleek	Athom Homey
Not Open Source	Not Open Source	Not Open Source
No efficient android connectivity	No android connectivity	Android connectivity
No Connectivity with smart devices	No Connectivity with smart devices	No Connectivity with smart devices
No Image Recognition	No Image Recognition	No Image Recognition
New features are not integrated	New features are not integrated	New features are not integrated
Social Networking can't be integrated	Social Networking can't be integrated	Social Networking can't be integrated
Map services are not integrated	Map services are not integrated	Map services are not integrated

So finally we came up with..!!!

So finally we came up with..!!!

So finally we came up with..!!!

And we call it

So finally we came up with..!!!

And we call it "JASPER"

What is Jasper?

Introduction

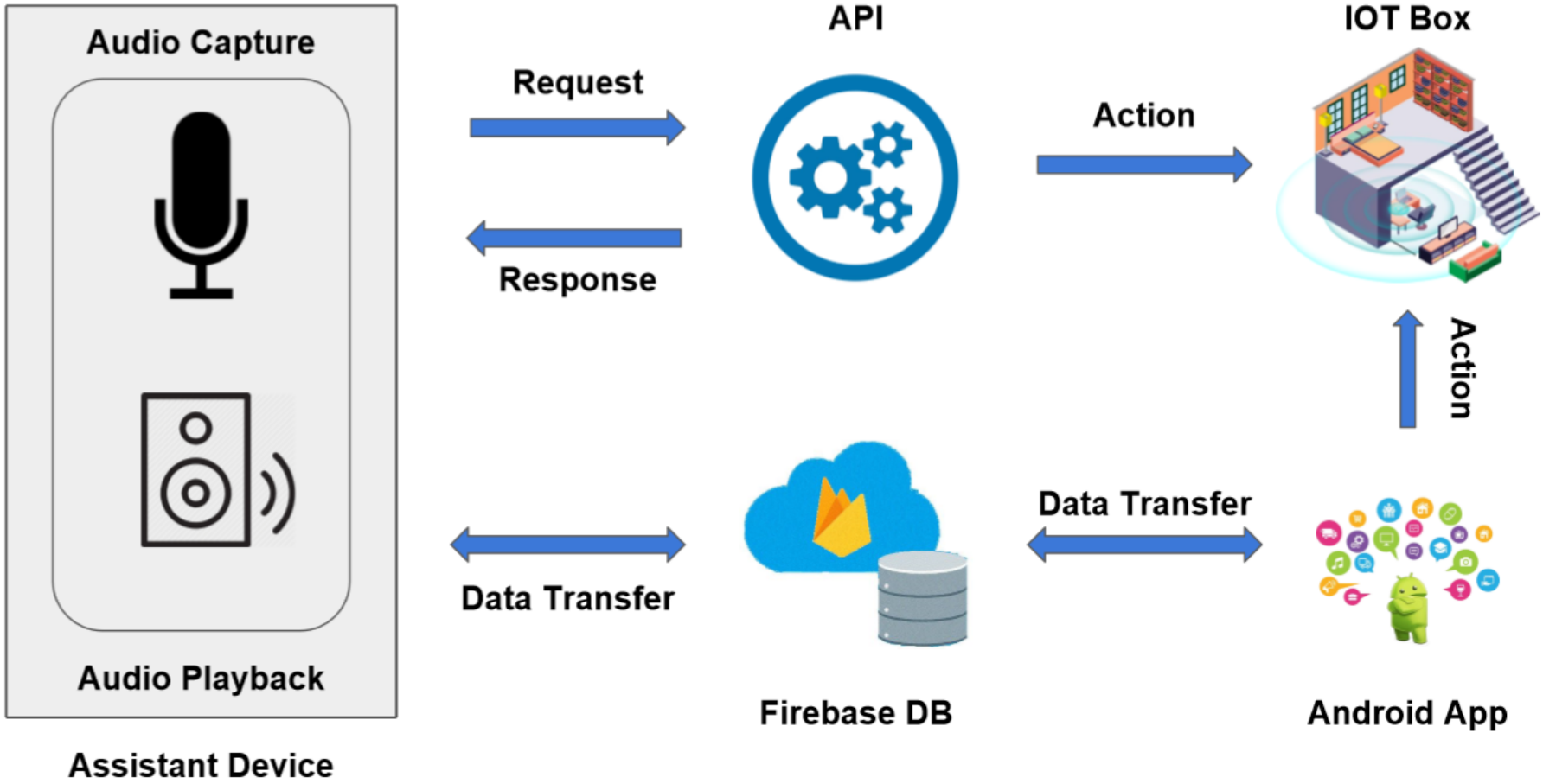
- An open source Voice controlled personal assistant device.
- Written in Python.
- Built on top of Pocketsphinx STT and Ivona TTS.
- A standalone intelligent device which can perform basic tasks like Web search, Book Tickets, Integrate mails and many more.
- Can connect the IOT devices in the vicinity and control them with built-in voice commands.
- Connects with a Android app to personalize and control the functionality of the device.

Why use Jasper?

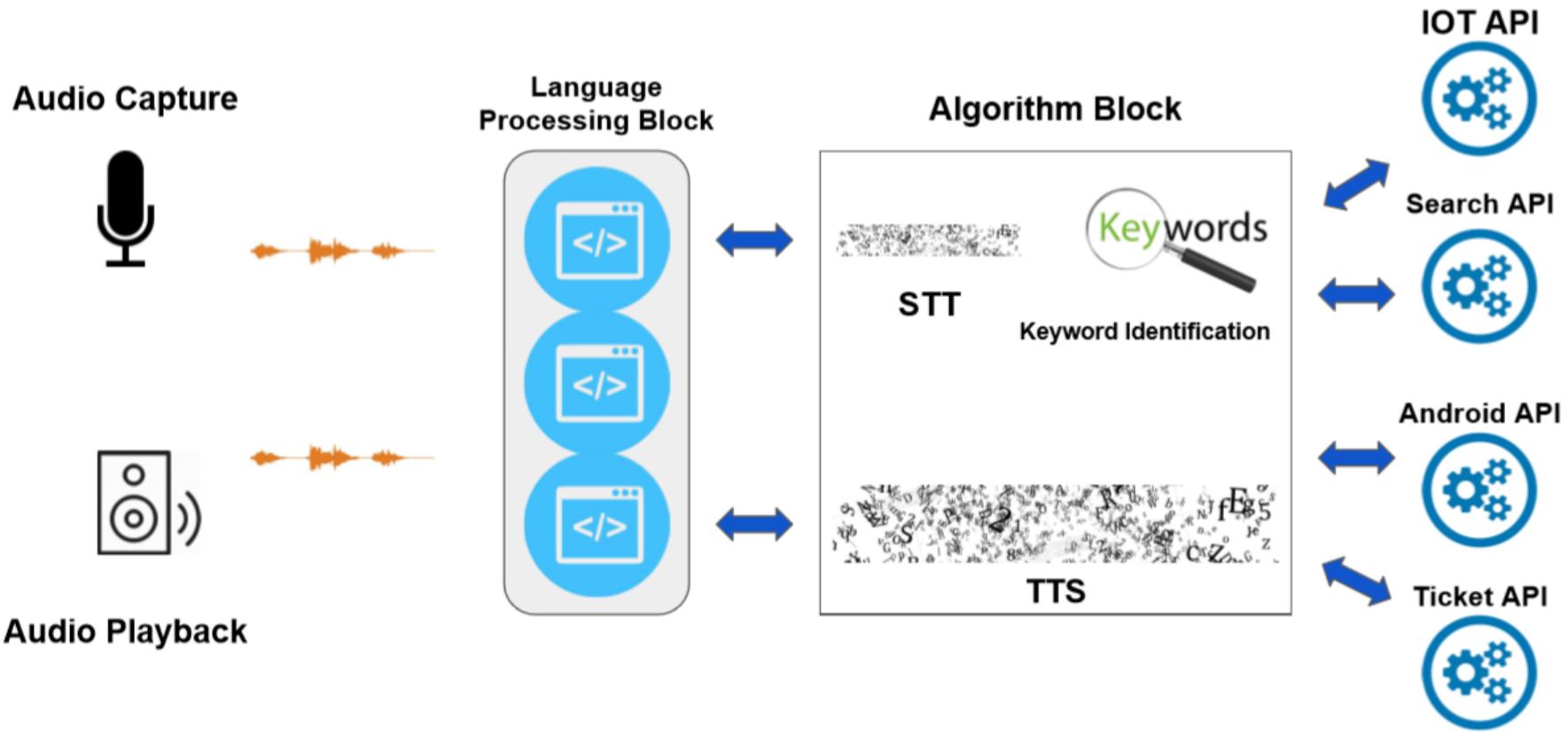
Features

- Replace the need of having different devices and application for different task performing.
- Open to community.
- Skill sets can be extended.
- Ease of use through voice commands.
- Can be personalized.
- Integrated Android Application.
- Can interface with IOT devices in the vicinity seamlessly.

Flow Diagram



AI Device Flow Diagram



IOT Box Flow Diagram

Android App Flow Diagram

Key Components

The most prominently used software and hardware in Jasper are as follows:

Key Components

- PocketSphinx STT
- Ivona TTS
- Firebase Cloud Services
- Raspberry Pi 3 Model B
- Arduino Uno
- Google Translate
- Scikit Learn

Key Components

Following Natural language processing engines will be used in the project:

Pocketsphinx STT

- PocketSphinx is a lightweight speaker independent speech recognition engine, specifically tuned for handheld and mobile devices.
- It is one of the Carnegie Mellon University's open source large vocabulary.

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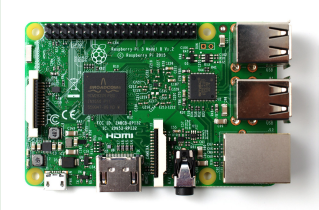
Ivona TTS

- Pyvona is a python wrapper for Amazons IVONA. Using Pyvona, great cross-platform text-to-speech is simpler than ever.
- It is a Open Source TTS built by Amazon and also used in the Amazon Echo.

Inverted Index

Primary hardware which will be used for jasper will be as follows:

Raspberry Pi 3



- A 1.2GHz 64-bit quad-core ARMv8 CPU
- 802.11n Wireless LAN
- Bluetooth 4.1
- 1GB RAM
- 40 GPIO Pins

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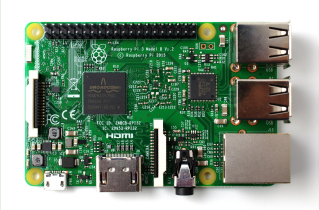

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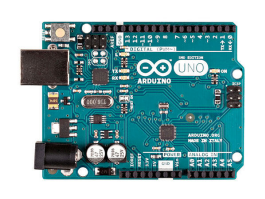

- ATmega328 microcontroller
- 6 Analog Inputs
- 32K Flash Memory
- 14 Digital I/O Pins (6 PWM outputs)

Firebase Cloud Services

Firebase is a cloud services for software developers building mobile or web applications.It provides the following features:

- Analytics
- Cloud Messaging
- Authentication
- Realtime Database
- Storage
- Notifications

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Google Translate

- Google Translate is a free multilingual statistical machine translation service provided by Google to translate text, speech, images from one language into another.
- Google Translate algorithms are based on statistical analysis rather than traditional rule-based analysis.

Advantages

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Open to Community

Open source and skills can be extended.

Ease-of-Use

Fully controlled by vocal commands. Can be used by any age group.

Integration of IOT

IOT Devices in the vicinity can be interfaced using built-in voice commands.

Advantages

Open to Community

Open source and skills can be extended.

Multi-tasking

Have the capability to perform various types of task, not performed by other voice controlled devices.

Ease-of-Use

Fully controlled by vocal commands. Can be used by any age group.

Personalized

Features like mail integration, To-do list and many more

Integration of IOT

IOT Devices in the vicinity can be interfaced using built-in voice commands.

Out-of-box Features

Features like Image recognition, Android app and One Device multiple Social Networks.

Conclusion

Jasper is a **Step Forward** to the era of Voice controlled Personal Assistant Device.

It is a great **Open Source Platform** built on top of Open source NLP tools and still performs according to the like of other alternative present.

Also it is **easy to setup** and **get started** with.

And it also supports on go **integration of IOT devices** which other Personal assistant devices does not, with an **Android app** built on top of it.

Future Scope

Future Scope

- The device can make a conversation with the user instead of just servicing the commands.
- Language translation on go for multiple languages.
- More than one jasper can connect to form a web of Personal Assistant Devices.
- Making Phone calls and voice mails integration using the AI Device.

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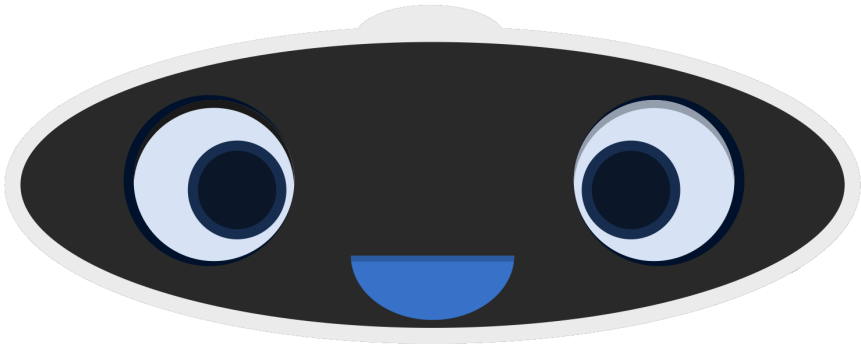
Thank You!!!



Questions?