

DEVELOPMENT OF A SMART MIRROR WITH ARTIFICIAL INTELLIGENCE

PROBLEM DEFINITION

Life today is fast. We need to have information on the go. With everything getting smart and interactive, exchange of knowledge and information gets easier. But a lot of our time is whiled away doing the general chores and getting ready. Imagine a scenario when you come in front of your mirror to get dressed and your own personal AI is at your disposal for a series of tasks and updates that you demand from it.

Your customised newsfeed, weather updates, and a plethora of services in the go. The Smart Mirror aims to be your interactive assistant.

AIM

To develop and implement an Artificial Intelligence equipped Smart Mirror that can interact with the person standing in front of it and provide answers to specific questions along with a customised newsfeed for a better user experience.

OBJECTIVES

The proposed system aims

1. To design and prototype a device that acts as a “Smart Mirror” by providing customizable information on the display.
2. To act as a conventional mirror while also superimposing informational data, which can be customized by the user.
3. To allow for touch free user interaction with inbuilt voice recognition feature.
4. To provide the users with the ability to create a profile and customize the visual interface to display what specific data feeds they want.

BENEFITS

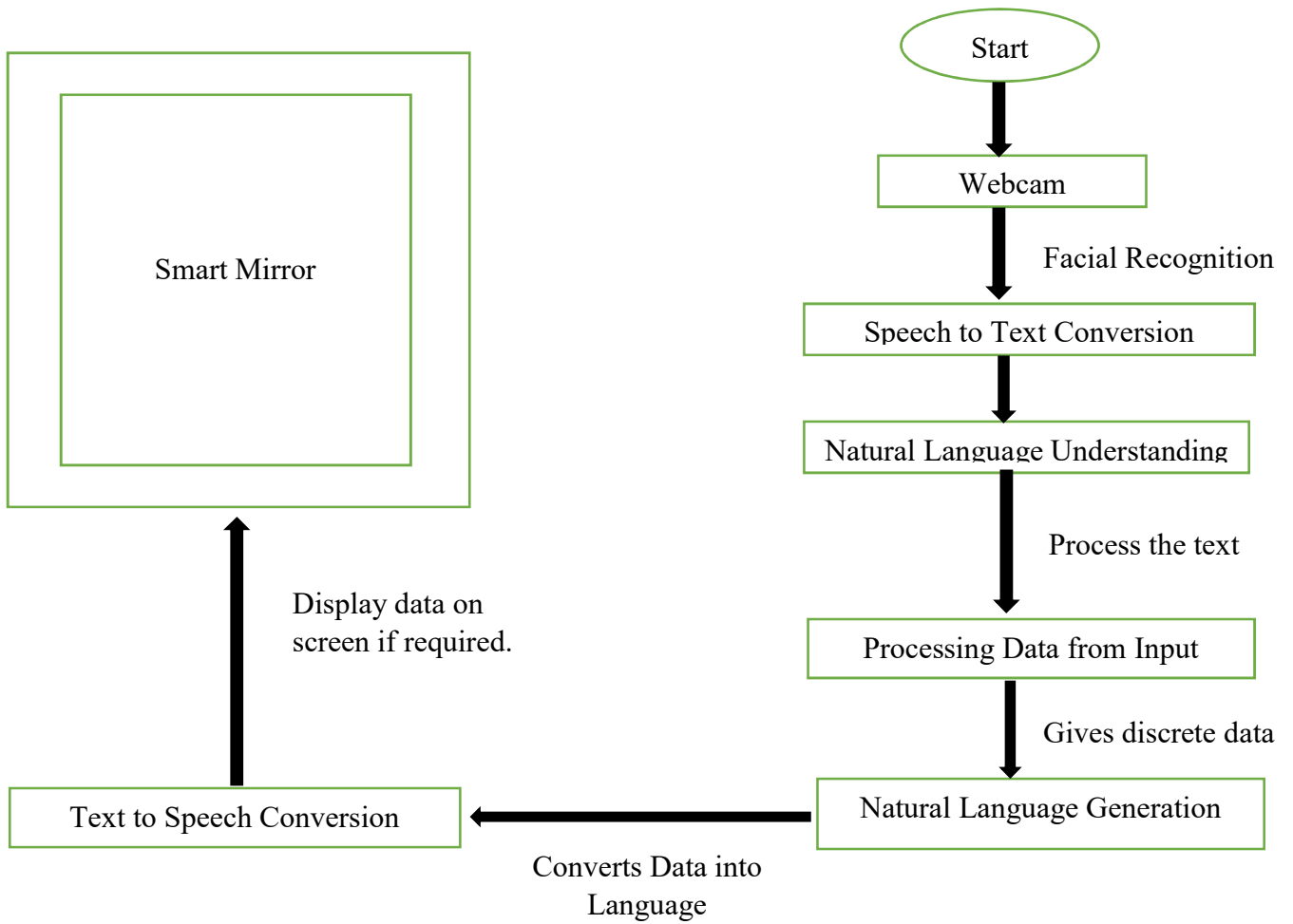
Our proposed “Smart Mirror” has following advantages:

- **Interactive:** The proposed “Smart Mirror” can interact with the user giving the user information and updates on some topics that are asked for
- **Customizable:** The feeds and updates given by the mirror are completely customizable and depend upon the person standing in front of the mirror.
- **Multitasking:** The artificial intelligence inbuilt in the “Smart Mirror” helps it to perform various operations such as providing updates and feeds on general topic along with doing the conventional job a normal mirror
- **User Friendly:** The application is user friendly as it enables user to operate the mirror just like another computer or any smart device.
- **State of the Art:** This futuristic approach of the proposed “Smart Mirror” helps to contribute towards modernisation and the concept of a “Smart Homes”.

PROPOSED PLAN OF WORK:

WEEK	DATE	TASK	STATUS
Week 1		Finalisation and approval of the problem definition.	In Process
Week 2		To decide the algorithms to be used for Artificial Intelligence.	
Week 4		To Study the working of Raspberry pi.	
Week 6		To set up Raspberry pi as per the project's need.	
Week 7		To configure Raspberry pi and the model.	
Week 8		AI Code Implementation.	
Week 10		Designing and creation of frame for the mirror.	
Week 11		Installation of monitor and mirror on the frame and make required connections.	
Week 12		Implementation and integration of different modules along with testing and maintenance.	

METHODOLOGY:



TECHNOLOGIES:

1. Google Speech API

Google Cloud Speech API enables developers to convert audio to text by applying powerful neural network models in an easy to use API. The API recognizes over 80 languages and variants, to support your global user base. You can transcribe the text of users dictating to an application's microphone, enable command-and-control through voice, or transcribe audio files, among many other use cases. Recognize audio uploaded in the request, and integrate with your audio storage on Google Cloud Storage, by using the same technology Google uses to power its own products.

2. Wit.ai

Wit.ai makes it easy for developers to build applications and devices that you can talk or text to. It empowers developers with an open and extensible natural language platform. Wit.ai learns human language from every interaction, and leverages the community: what's learned is shared across developers.

5. Wit.ai API is completely free for public and private instances with no limitations on request rate.
6. It provides a nice combination of both voice recognition and machine learning for developers.
7. Wit.ai has two elements to it that you set within your app –
 - 1) Intents
 - 2) Entities.
8. Actions are separated to use as a combined operations.
9. It has pre-build entities like temperature, number, URLs, emails, etc.
10. It doesn't have interaction module to directly communicate with other messenger APIs (like Facebook Messenger), but it has web service API to hook services.
11. Wit.ai API is available for developers to use with iOS, Android, Windows Phone, Raspberry Pi, Python, C and Rust. It also JavaScript plugin for front-end developers.

3. Python and Raspbian OS

Python: Python is a widely used high-level programming language for general-purpose programming. An interpreted language, Python has a design philosophy which emphasizes code readability and a syntax which allows programmers to express concepts in fewer lines of code than might be used in languages such as C++ or Java. The language provides constructs intended to enable writing clear programs on both a small and large scale.

Raspbian OS: Raspbian is a Debian-based computer operating system for Raspberry Pi. Raspbian is highly optimized for the Raspberry Pi line's low-performance ARM CPUs.

DELIVERABLES

The proposed “Smart Mirror” provides:

1. An Interactive Assistance.
2. Customizable Feeds and Updates
3. Weather Updates
4. Touch free user interaction
5. Voice Recognition Features
6. Job of a conventional mirror.

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