

# Project overview and requirement document

The project Emosphere is an AI model with total integration of chatbot, emotion and task performing Ai . It is the combination of hardware as well as software. Some of the details about the project are described below:

## Functionality requirement

The modules used in our project are as follows:

1. **OS module:** The OS module in Python provides a way to interact with the operating system. It offers various functions for working with files and directories, managing processes, and performing other operating system-related tasks.
2. **BS4 module:** The bs4 module, also known as Beautiful Soup, is a Python library used for web scraping and parsing HTML and XML documents. It provides a convenient way to extract and manipulate data from web pages.
3. **Request module:** The 'requests' module is a popular Python library for making HTTP requests. It simplifies the process of sending HTTP requests, handling responses, and managing session-level information.
4. **Json module:** The "json" module in Python, which provides functionality for working with JSON (JavaScript Object Notation) data. The 'json' module allows you to encode Python objects into JSON strings and decode JSON strings into Python objects.
5. **Pytsx3 module:** The 'pytsx3' module is a Python library that provides a cross-platform interface to the Text-to-Speech (TTS) engines installed on your system. It allows you to convert text into speech and control various aspects of the speech synthesis process.
6. **Speech recognition:** The 'speech\_recognition' module is a Python library that provides support for performing speech recognition tasks. It allows you to convert spoken language into text, enabling you to process and analyze spoken words.
7. **Open Ai:** The 'OpenAI' API module for Python, it allows you to interact with various OpenAI services, such as the GPT-3 language model. As of my knowledge cutoff in September 2021, OpenAI provides the openai Python library for accessing their API.

## Product backlog

The project Emosphere is multipurpose Ai model, with multiple features and qualities, It is the combinations of hardware and software. Some of the features of the Emosphere are:

1. **Chatbot:** A chatbot with emotion AI involves integrating natural language processing (NLP) techniques with emotion recognition capabilities. The goal is to create a chatbot that can understand and respond to user input while also detecting and responding to the user's emotional state. Here's an overview of the steps involved in creating a chatbot with emotion AI:
  - Emotion Recognition
  - Natural Language Processing (NLP)
  - Dialog Management
  - Emotion-aware Responses
  - Training and Evaluation
  - Iterative Development and Improvement
2. **Recommendation system:** A recommendation system with AI emotion can be developed by integrating emotion recognition techniques into the recommendation process. This allows the system to consider the emotional state of the user when making recommendations. Here's an overview of how you can build a recommendation system with AI emotion:
  - Emotion Detection
  - User Profiling
  - Content Analysis
  - Emotion-aware Recommendation Algorithms
  - Evaluation and Feedback
  - User Interface and Presentation
3. **Task perform:** Emosphere can perform different tasks assigned inside the PC or in the physical world, such as:
  - Opening a directory
  - Playing some music or movies
  - Web scrolling
  - Switching on fan, bulb or some other electronic gadgets

## Workflow

The emosphere is Ai model with multiple features and qualities, its starting point is from the user, which is as follows:

A user will speak something to the emosphere then, it will categorize the sentence spoken by the user between two types talk or task. If the sentence is of talk type then it will reply to that sentence using its Ai and if the sentence is of type task then it will again categorize the task between two types whether the task required any emotion or not. If the task doesn't requires any emotion to be performed the it will directly perform the task otherwise it will use its Ai to get knowledge related to that task which is suitable with that emotion and at last it will perform that task.

If the task assigned to the emosphere is to do something in the physical world such as switch on fan, light or close door then at that time it will generate a digital signal to the port of that Arduino and it will perform the task as it is assigned.