

## PROJECT PROPOSAL

<b>Date of proposal:</b> <b>2024-02-01</b>
<b>Project Title:</b>  <b>Task Slinger</b> <i>"Say it, sling it - task management made easy!"</i>
<b>Group ID (As Enrolled in Canvas Class Groups):</b> <b>Group 1</b>  <b>Group Members (Name, Student ID):</b> <b>Richard Chai Cheng Hee, SXXXX946Z</b>
<b>Sponsor/Client:</b> <i>(Company Name, Address and Contact Name, Email, if any)</i> Dr. Gary Leung National University of Singapore, Institute of System Science 25 Heng Mui Keng Terrace Singapore 119615 Email: <a href="mailto:cc.leung@nus.edu.sg">cc.leung@nus.edu.sg</a>
<b>Background/Aims/Objectives:</b>  <u><b>Background</b></u>  Recording tasks and sending notifications is a toil for busy professionals in the office, and especially for those on the move.  For example, <ul style="list-style-type: none"> <li>- A manager or a salesperson driving in a car while conversing on the phone and needing to create a task/appointment without operating a laptop or mobile phone while driving because it is illegal and unsafe, or</li> <li>- A shopper with shopping bags in both hands trying to make an appointment in their calendar or create a task.</li> <li>- Anyone who needs to create a task/appointment/event directly from a group chat (e.g. Telegram Groups), has lots of copy/paste to do, to move data from the group chat to their calendaring software.</li> </ul> <p>In the above situations, they would need to use their hands to open their calendaring app to type in the details, set a notification and email the task to people involved, which would be difficult indeed. Moreover, if they are using a computer laptop, they would need to find a place to sit or face the risk prospect of balancing their laptop on one hand while typing with the other. And if they were using a mobile phone, creating tasks and appointments using a tiny screen and keyboard can be a pain.</p> <p>Rather than manually doing transcription, extraction, summarization, task creation and notification, wouldn't it be far easier to text or speak to an Intelligent Agent who can do all that within seconds?</p> <p>And that Intelligent Agent is "Task Slinger", the protagonist for this <u>10-man-day</u> project.</p>

A check on Google Play Store shows that Google Calendar has been downloaded and installed more than 5 billion times. However, the number of Singapore users is definitely far smaller than that.

If we assume that 10% of Singapore's population (6 million) use Google Calendar for either work or personal usage, that would be roughly 600,000 Singaporeans. And if 10% of these Singaporeans adopt *Task Slinger*, that would be 60,000 users. At a fee of \$1 a month, that would be a revenue of \$720,000 a year.

## **Objectives**

### **Primary Objectives for Task Slinger Intelligent Software Agent**

- Receives a Telegram Voice or Text message,
- Transcribes the voice message to text (if required)
- Extract key task-related facts such as
  - o date, time, day-of-week, location, title, summary, people involved, reminder notification flag.
  - o Confirm with user that the facts are correct
- Creates a text summary of the task.
  - o Confirm with user that the summary is correct
- Calendar Management
  - o Authenticates with calendar software
  - o Inserts the task in the user's calendar with relevant details.
- Provide relevant prompts and ask for user choice or confirmation in text or voice as appropriate.
- The Agent must be safe and ethical, i.e.
  - o It should NOT create tasks in the user's calendar that are illegal, unsafe, or unethical.
  - o If one or more of the AI Models used in this project is not aligned for safety and ethics, alignment via RLHF or RLAIF should be done.

### **Future Enhancements:**

- Send notifications to the other people involved in the task.
- List all tasks on a specific date and date/time, e.g.
  - o "What tasks do I have on Wed next week from 1pm to 5pm?"
- Modify Tasks in User's Calendar
- Remove Tasks in User's Calendar

## **Project Descriptions:**

### **Python Packages**

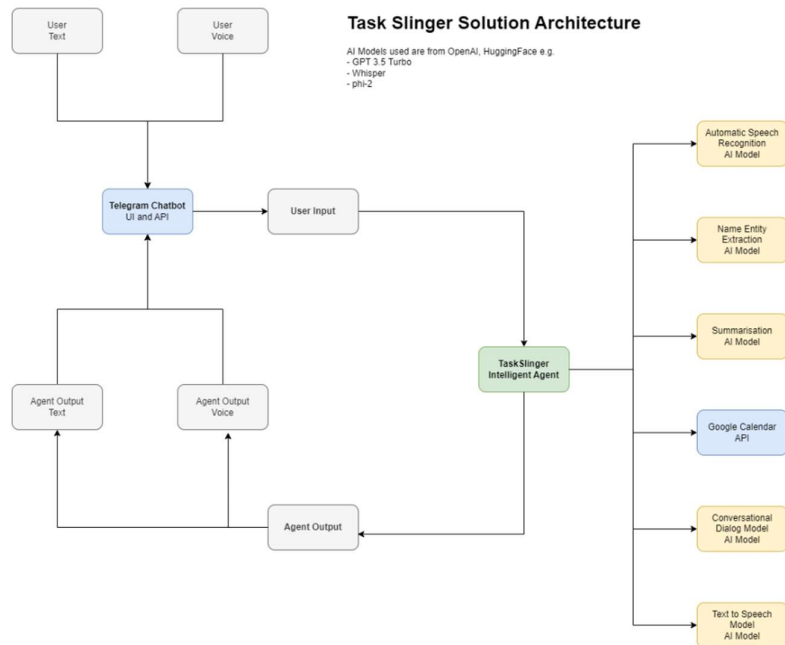
- Typing
- Pydantic
- Google-api-python-client
- google-auth-httpplib2
- google-auth-oauthlib
- Telegram
- Telegram.ext
- Langchain

- Openai
- Pytorch
- Transformers (HuggingFace)
- Boto3
- bitsandbytes
- transformers
- xformers
- peft
- accelerate
- datasets
- trl
- einops

#### Task Flow

- User types a message or sends a voice message to Telegram bot “@TaskSlinger”
- TaskSlinger transcribes the voice message to text if required.
- TaskSlinger extracts key task related information from the text and interacts with the User via voice or text to confirm if the facts are correct.
- TaskSlinger performs safety and ethics detection. If it detects tasks that are unsafe or unethical, it will inform the User that it is unable to assist for that task.
- TaskSlinger summarizes the task text and interacts with the User via voice or text to confirm if the facts and summary are acceptable by the user. If they are not, it will interact with the user to obtain them. If the final task facts and summary are unsafe or unethical, TaskSlinger will not assist further.
- TaskSlinger will seek permission from the User to insert into the user's personal or shared Google calendar.
- TaskSlinger will inform the User once the task creation is completed
- At any time, the user can ask TaskSlinger to stop the process.

## TaskSlinger Solution Architecture



Task Slinger intelligently automates many manual, tedious and complex processes for the human user while keeping the human-in-the-loop!