Project Status Report- Smoke Outlook Translation Model

Project Team Name: Fire Bot, Group B (Smoke Outlook Translation Model) [Aparajita Pathak, Samuel D. Ryan, Agampreet Singh, Frankie Roberts, Yiyu Chen]
Sponsor Name: Jonathan Callahan
Date Submitted: Feb 18, 2025

Project Purpose - The goal of this project is to use USFS AirFire group's corpus of existing outlooks and translations to train a ChatGPT model for improved translations. A simple user interface will also be needed to allow professional translators to compare translations using the trained and untrained models. This project will reduce the amount of time staff spend translating outlook models while maintaining high quality translations.
Add value proposition

I. Summary of Progress/Milestones Reached (since last reporting period) (move deliverables up once completed. max 6. remove lower priority items)
We have successfully completed the following milestones:
- Created initial model on ChatGPT with translations
- Created simple UI model to compare new translation model to old one
- Added project documents, presentations, and scripts on Github for sponsor to view
- Chosen AI model, GPT 4o-mini
- Received new translation data
- Received more API tokens (budget)
- API budget not an issue

II. Deliverable/Milestone Status (since last reporting period)
- <mark style="background-color:#00ff00">Green</mark> – All on time
- <mark style="background-color:yellow">Yellow</mark> – Some delayed
- <mark style="background-color:red">Red</mark> – Ability to complete key deliverables/reach key milestones significantly at risk

Status color and explanation of above delays and/or significant deviation from project schedule and plan to get back on schedule.

Deliverable	Status	Explanation
Initial setup of HOWTO documentation on GitHub	<mark style="background-color:#00ff00">On Track</mark> ETA: Before Next Sponsor Meeting 2/21 Progress: 50%	Another goal of the project is to create a HOWTO document so that staff members are able to understand and create this type of model again. Add to GitHub
Final reviewing and testing translation model	<mark style="background-color:#00ff00">On Track</mark> ETA: Before Next Sponsor Meeting 2/21 Progress: 75%	The base translation model is almost complete but still adding new data that was received last week
Research adding 'Temperature' for requests to	<mark style="background-color:#00ff00">On Tack</mark> ETA: Before Next Sponsor	Sponsor had asked us if possible to add translations

the API	Meeting 2/21 Progress:25%	for Temperature in the smoke outlooks. We plan to research more about that before discussing about it in the next meeting
Evaluation for translations	On Track ETA: Discuss with sponsor during meeting 2/21 Progress: 75%	Creating a graph/metric representing the accuracy of translations per model.

III. Resource Status (since last reporting period)

task owner
Status color and explanation of above resource issues and steps planned to remediate.

Resource	Status	Explanation
OpenAI API	Acquired	OpenAI credentials are provided by AirFire, and the API is readily accessible for translation tasks. Team has been actively utilizing API calls for models.
JavaScript/Node.js	Complete	Application and interface has been developed.
ExpressJS	Complete	Application and interface has been developed
HTML/CSS/JavaScript	Implementing	Awaiting feedback on current front end design and accessibility.
Corpus of translations	Acquired more smoke outlook data	Data from USAirfire has been utilized for training model

Project Status Report- Smoke Outlook Translation Model

Visual Studio Code	Ongoing coding	Coding almost at 100 percent. Awaiting final details.
GitHub repository	Utilizing	Repositoryhas been setup with multiple branches and development has been pushed into the current dev branch. Yet to push the entire codebase to the main branch.
Postman (or equivalent)	Utilizing	has been utilized for calling openAI APIs
OpenAI training guide	Referencing	Documentation is available online to guide model training and prompt engineering. Need to work on consolidating.
Budget for API usage	Acquired	Sponsor has approval of adding budget for API Keys and Tokens. API usage budget is not even at 1 percent utilization with plenty left for further testing.
User feedback for testing	Might face delays Reasoning: Our sponsor will work with the Spanish representative from their team to provide an evaluation of our current output. Based on the Evaluation metrics, we will move forward with next steps.	Dependent on translator availability and feedback, which may delay iterative improvements to the system.
Development milestones	On Track	Development is near 100 percent completion,
Documentation (HOWTO, etc.)	On Going	Documentation is still ongoing at 70 percent

Project Status Report- Smoke Outlook Translation Model

		completion. We need to consolidate and add details for the 'HowTo' section.

IV. Sponsor Status (since last reporting period)

Sponsor Status: <mark>Green</mark>

Our Sponsor, Jonathan has remained actively engaged, attending all scheduled meetings and responding promptly to updates. His support has been valuable in keeping the project on track.

Currently, we are heading towards the final stages of the project, creating the translation model, setting up the UI, comparing models, and creating the HOWTO documentation. No major issues have been identified at this stage. To maintain this status, we will continue providing weekly updates and proactively addressing any potential challenges to keep progress aligned with project goals.

V. Other Status Points

- Any other issues encountered that your TA and/or the Capstone Instructor needs to be aware of?
- Anything that your TA and/or the Capstone Instructor can provide to help ensure progress and project success?

There haven't been any major issues that need attention at this time. The project is progressing as planned, and no significant obstacles have been encountered.In our previous report we estimated the need for increasing and adjusting our budget for potential extra token usage. In our previous report, we anticipated the need to adjust our budget for potential extra token usage due to the expected computational demands of our translation model. However, after further analysis of model usage patterns and discussions with our sponsor, we found that our token consumption has been minimal. The current budget remains largely untouched, providing sufficient resources to continue fine-tuning our model and running additional test cases without financial constraints.

Additionally, our recent evaluations have focused on optimizing translation accuracy and latency. We are refining our prompt engineering strategies and exploring model parameter adjustments to improve performance. We welcome any feedback or suggestions, particularly regarding best practices for model efficiency and scalability as we move forward.

VI. Planned deliverables for next reporting period.

Include a brief summary of your planned deliverables/milestones for the next reporting period.

For our next major milestone, we will finalize the details of our output deliverable. Most of the Web app design is complete, and our focus is now on integrating and deploying our selected translation model to deliver a functional end product.

Project Status Report- Smoke Outlook Translation Model

A key priority is developing a robust documentation system that ensures easy navigation and usability, as requested by our sponsor. This will include structured guidelines on model usage, API integration, and system architecture to support future scalability.

Our current application outputs translations from both the base and fine-tuned models. We plan to meet with our sponsor to refine the design and determine the preferred output format for deployment.

For the next reporting period, we plan to:

- Verify and test translation quality through manual testing and feedback.
- Enhance the UI for better accessibility and ease of use.
- Finalize the model selection for integration into the final UI.
- Improve documentation by creating a structured navigation system for easier reference.
- Continue system testing and gather feedback from translators to refine both the model and interface.