INTEGRATING SPEECH IN FEEDBACK DEVICES

A PILOT REPORT

APRIL 2023

Summary

Sunbird AI

Sunbird AI is a non-profit organization that develops artificial intelligence systems for social impact in Africa. These applications are open-source and freely available to public and private institutions to support them by harnessing AI for their information needs. Each project is co-created with these partner organizations to ensure that there is a clear benefit to society and that the technology is developed inclusively and responsibly. Sunbird AI also aspires to I'm up at night she could send but contribute to the development of Africa's AI capacity as well as being a neutral source of advice for African institutions on the practical possibilities, benefits and risks of AI technology.

STICHTING SEMA

SEMA is a registered company in Uganda operating as a company limited by guarantee. Our primary objective is to enhance transparency and accountability in public services by facilitating real-time citizen feedback. We collaborate with governments to establish platforms through which clients can provide feedback. Our feedback collection methods include in-person interviews, feedback devices, and remote feedback technologies such as QR codes and USSD codes.

One of our key feedback tools, the SEMA feedback device, utilizes five emoji buttons to communicate client satisfaction, ranging from "very bad" to "very good." Clients can press the button that best represents their perception of the service provided. As part of our partnership with Sunbird, our focus is on enhancing this device by integrating a voice feedback feature.Through this collaboration, our aim is to empower clients to express their feedback through voice recordings, thereby providing a more comprehensive and expressive means of communication. This improvement will enable us to gather richer insights and enhance the overall effectiveness of our feedback collection process.

Purpose

This report aims to provide an update on the collaborative efforts between Sunbird AI and SEMA in optimizing the advantages of integrating speech feedback into the existing SEMA device. Specifically, it focuses on the initial pilot of the voice feedback device, which took place at Kiswa Health Center III from October 18, 2022, to January 27, 2023.

Working with Sunbird

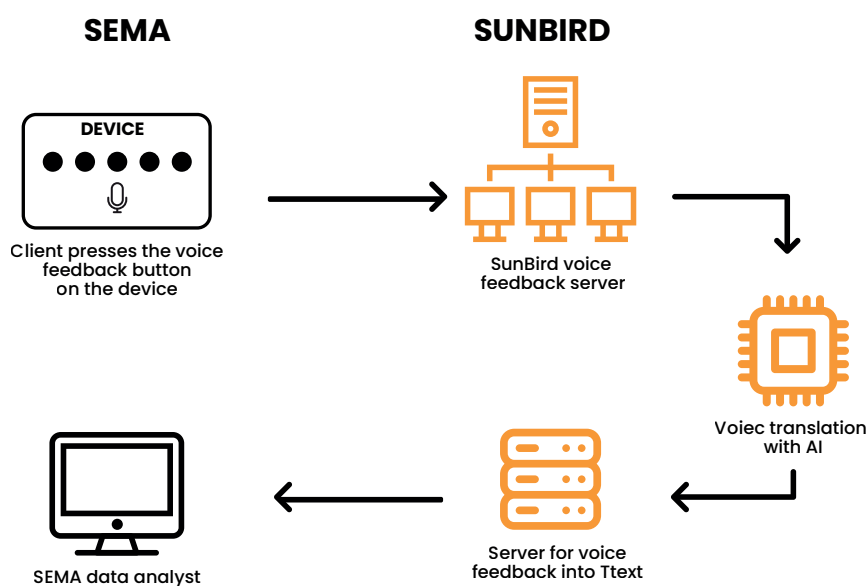Our collaboration with Sandbird centered around three primary areas, namely;

1. Expand the functionality of current SEMA feedback devices to allow for speech feedback.

The SEMA device utilizes five emoji patterns to facilitate communication with clients. It is typically positioned at the exit point of a public office, allowing clients to press a button that reflects their satisfaction with the services they have just received.

In our partnership with Sunbird, our primary focus was to incorporate voice feedback into the device. This feature enables clients to provide reasons for selecting a particular emoji button, allowing for a more comprehensive understanding of their feedback. Our goal is to promote inclusion and enhance the device's user-friendliness so that clients can provide explanations alongside their ratings, shifting the focus from purely quantitative data to include a qualitative aspect. By considering both the numbers{quantitative data} and the voice recordings{qualitative data} from the device, we aim to gather more comprehensive feedback from clients, resulting in a more insightful evaluation of the services provided.

The voice feedback collected through the device will be securely stored on Sunbird's servers. To extract valuable insights from this data, it can be processed using Sunbird's AI voice translation model. The Sunbird Translate system has the capability to automatically translate text between English and any of the five local languages: Acholi, Ateso, Luganda, Lugbara, and Runyankole. The translations are performed with state-of-the-art accuracy, ensuring reliable and accurate conversion.

Once the voice feedback is translated into text, the translated text will be provided back to SEMA. SEMA can then utilize this translated text in the analysis of citizen satisfaction and incorporate it into their reports. By leveraging the power of AI translation technology, we can enhance the analysis process and gain deeper insights into the feedback provided by citizens.

SEMA

SUNBIRD

DEVICE

Client presses the voice feedback button on the device

SunBird voice feedback server

Voiec translation with AI

SEMA data analyst

Server for voice feedback into Ttext

2. To pilot speech feedback at one of the current SEMA sites.

Device press distribution *(From 18 Oct 2022 to 27 Jan 2023)*
During the pilot phase of our project, we observed that the buttons on the device were pressed evenly by the clients. This indicates that clients had a relatively balanced distribution of feedback from all options presented by the buttons. It suggests that clients were utilizing all the available options to express their varying degrees of satisfaction with the service. This observation provides valuable insight into the engagement and feedback patterns of the clients during the pilot phase.

Button	Very Good	Good	Okay	Bad	Very Bad	Audio files
Number	146	57	105	32	60	116

Pie Chart showing the Percentage Distribution of Presses

Very good · Good · Okay · Bad · Very bad · Audio Files
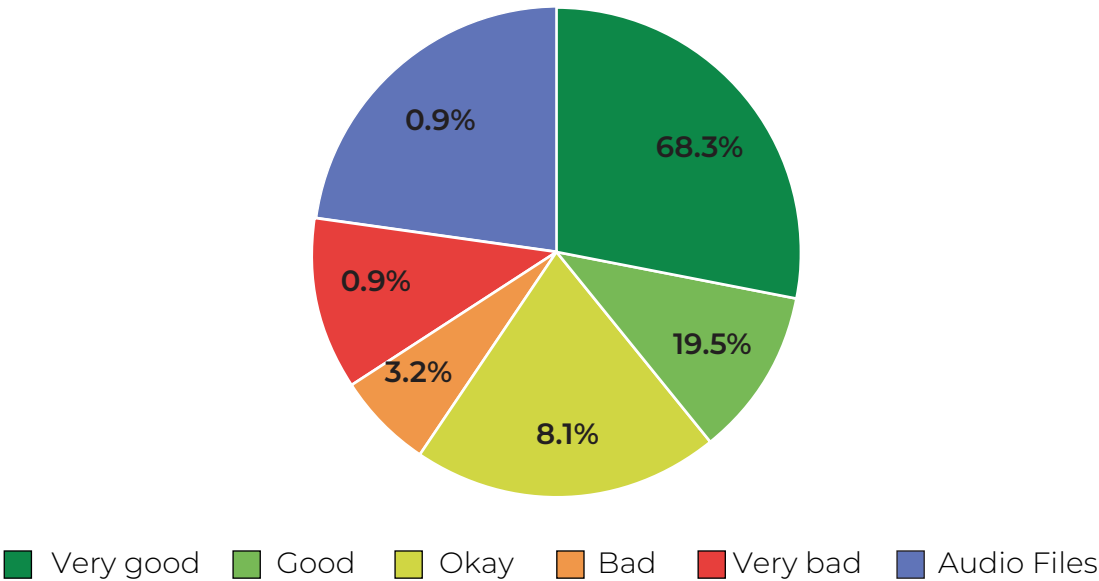
SUMMARY FROM THE EXPERIMENTS RUN SINCE 19 DEC 2022

The newly developed device, equipped with a voice recording feature, was deployed for testing purposes at one of our service points, specifically at Kiswa Health Centre. This allowed us to conduct experiments and gather first hand feedback from clients using the device in a real-world setting. Placing the device at the health center provided us with an opportunity to assess its functionality, usability, and effectiveness in capturing voice feedback from clients. We ran 3 experiments on the voice feedback device to observe the usage of the device from the clients and its overall performance.

Experiment 1: Letting client use the device without directing them to do so.

A significant number of clients who approached the device without any guidance tended to press the first five buttons on the device. These clients mentioned that they were unaware of the presence of a specific button for recording their feedback. Additionally, some clients who were in a hurry chose to press one of the five emoji buttons as a means of rating their experience, without recording any verbal feedback. Although a few clients intentionally utilized the device as intended, we were unable to engage with the majority of them due to our limited availability while providing orientation and assistance to other clients.

Experiment 2: Directing client to go and use the device without training them how to use it.

On Average 70% of the clients directed to the machine required extra explanation/teaching from the SEMA trainee on using the device. Many clients sought guidance on how to use the machine, This means that there is need for further developments on making the recording function easy to access and use by clients with minimal interventions from SEMA/SunBird.

Experiment 3: Training clients on how to use the device and they manage to use the recording function.

A considerable number of clients at the health center expressed a need for assistance in using the feedback device. They were receptive to learning about its functionality and how to record voice notes to provide feedback. However, a significant portion of clients showed a preference for using the feedback emoji buttons instead of the recording button. They mentioned that they had difficulty understanding or grasping the other features of the device beyond the basic options of *"very bad, bad, okay, good, and very good."*

TARGETS

Milestones to be measured.	Target	Result
Total number of people that have taken part in each experiment.	120	90
Number of days experiment carried out.	8	6
Observe battery life when the device is not plugged in.	8 hours	3-4 hours of working time

3. Explore opportunities for joint fundraising/ funding (joint proposal writing) to further the collaboration between Sunbird AI and SEMA.

Based on the insights gained from this pilot project, SEMA and Sunbird AI plan to leverage these learnings to explore fundraising opportunities. The objective is to secure funding that will support the production, testing, and enhancement of the voice feedback device.

FEATURE REQUESTS

At the conclusion of the pilot phase, the Sunbird team and SEMA team held a meeting to discuss the findings and identify key areas for improvement in the device. Currently, we are in the testing phase, specifically evaluating the device's performance in the real-world. As we move forward, our future focus areas for this project include;

- Led light keeps on for a while during the uploading period.
- Experiment with audio queue to notify start and stop of recording session on the device.
- Press button during the speaking with maximum of 1 minute as upper limit.
- Explore improvement of battery life to have the device last longer on battery: target-week.
- Short file upload times.
- Focus our branding more to the voice feature added to the feedback device.

By focusing on these areas, we aim to enhance the overall usability, performance, and effectiveness of the device as we progress beyond the pilot phase.

ANALYSIS AND MANAGEMENT OF THAT DATA

Once the voice feedback is successfully translated into text using Sunbird's AI translation technology, the translated text will be shared with SEMA. SEMA can then utilize this translated text to conduct in-depth analysis of citizen satisfaction. By having the voice feedback transformed into a readable format, the incorporation of translated text significantly reduces the time required to break down the feedback into a form that can be easily analyzed.

By leveraging the power of AI translation technology, SEMA can enhance their analysis process and gain deeper insights into the sentiments and opinions expressed by citizens through the feedback device. The inclusion of translated text in SEMA's reports and analysis provides a broader perspective and enriches the overall assessment of public services. It enables more effective decision-making and helps drive improvements in service delivery based on the insights derived from the voice feedback of citizens.

CONCLUSION

A majority of the clients we engaged with at our offices expressed their satisfaction with the voice feedback feature. However, many of them required an explanation on how the voice feature operates. Following the two-month pilot period, the Sunbird team was assigned the responsibility of enhancing the performance and functionality of the voice feedback features. In collaboration with the SEMA team, we have planned to conduct further testing of the voice feedback device at various partner offices to gather more valuable feedback.

SEMA
Feedback Matters

Want to partner with us, work with us, give us feedback, share your ideas, or just talk? Contact us!

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