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2. Provide an analysis of each step in the engineering design process that you can identify from project presented in the article.

The tool needs to be able to bridge communication barriers between the speech-impaired (the deaf/mute communities) and verbal speakers. The constraints, on the other hand, are the number of languages in the world that need to be translated into sign language; they also have limited resources as students, meaning they have to cut costs on the equipment, sensors, and much more just for this device to work at a bare minimum. The gloves already existed or had a similar technology; however, it was limited mainly to the English language and text conversions. The possible solution that I could give this to be able to improve it is to have some sort of app because machine learning in 2025 has gotten a lot more advanced, so taking advantage of machine learning could possibly improve this with the app asking, "Did you mean this?" or giving out suggestions to the user. The app may also display different images that are similar to the movement of the person performing sign language. Connecting the sensor-based gloves to WiFi for real-time processing is a promising solution because it is scalable; they could be able to use the information of the users (of course with a legal user privacy agreement) to be able to improve their machine learning capabilities to translate sign language more efficiently. The prototype would just be the gloves with add-ons, which is a WiFi module for transmitting to a computer-based machine learning system for processing and converting things into speech. After that, we have to test the limitations, which is the limited vocabulary, and then evaluate the accuracy to see how many times it works correctly and incorrectly. The most important part is the feedback from the deaf-mute community to get the positives and the negatives of the tool to identify what needs to be improved. As the testing goes on, we have to constantly redesign and improve as needed until it is fully functional without any problems or inaccuracies. Overall, the project is not just creative but useful; these people identified a real-world problem, researched, and chose a feasible design that was still within their budget as students. Built and tested a prototype and are now in the improvement stage of their tool.

Honor Pledge:
"I affirm that I have not given or received any unauthorized help on this assignment, and that this work is my own."