

LMET IVR Usability Testing Report

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Purpose

This document summarizes the findings from the two rounds of usability testing conducted by the WWOSTech UX team for the Last Mile Emergency Team (LMET) Interactive Voice Response (IVR) system.

Background

The Last Mile Emergency Team (LMET) provides 24/7 call support and escalation to mitigate security and operational risks that may impact driver, customer delivery, and community experience in relation to Last Mile operations. An IVR system is being proposed for LMET to reduce the number of call transfers by routing the caller to the correct team the first time by eliminating the caller's judgement from the decision-making process and implementing logic defined by program teams to the call flow. Currently, callers must listen to a long menu of options and select the correct option to be routed to the correct response team, leading to a problem of incorrect selections based on user judgement, increased out-of-scope calls, and long call wait times for LMET. The proposed project is to remake the LMET call workflow away from a menu listing options [1] to an IVR system which directs callers based on voice inputs [2].

Objective

This usability testing study will test how correctly the interactive voice response system routes drivers to the correct department based on their voice description that they speak into the demo emergency phone line. We want to gather quantitative metrics on what percentage of calls the voice response system correctly routes, to evaluate its accuracy and identify situations or keywords it doesn't recognize yet. We also want to gather qualitative feedback from drivers concerning the experience of



calling the new service, in order to identify areas of opportunity and improvement before initial release and for future enhancements.

Executive Summary

The WWOSTech UX team conducted two rounds of usability testing with drivers and dispatchers virtually and in-person at DTU8 and DAZ2 delivery stations in Phoenix, AZ, to test the demo LMET IVR phone line and record feedback.

The first round was conducted at DTU8 and DAZ2 on Sep 9 and 11, 2024, with 13 DAs (delivery associates) and dispatchers. Participants made 21 test calls with a 71% success rate in correctly routing their voice description to the correct department (LMET or SDS). We identified opportunities for improvement, including long pauses from the IVR, IVR prompts getting cut off, and refinements to the vocabulary of IVR prompts.

After making improvements to the IVR system identified from the first round of testing, we conducted a second round with 13 DAs, dispatchers, and a Flex DP (delivery partner). Participants made 19 test calls with a 95% success rate, a 24% improvement from the first round. Participants were delighted by the efficiency and responsiveness of the IVR system in comparison to the current voice menu pattern, stating that they were most impressed by the speed in connecting them to an LMET or SDS agent. From these test calls, we identified a small number of refinements to IVR vocabulary and voice recognition as backlog items for future enhancements.

Findings

Round 1

The UX team conducted a first iteration of usability testing with 13 DAs (Delivery Associate) and dispatchers. Participants made a total of 21 test calls with a 71% success rate (15 successful, 6 unsuccessful) in connecting to the correct department based on the stated scenario. When comparing the IVR system to the current menu options experience, participants overall responded positively, expressing that it was faster in connecting them to an agent, and not as frustrating as listening to a long list of repetitive call number options.



"I feel like especially when you're on the road and you're hot, you wanna get going and you're standing still for a long time, you're listening and it's really frustrating. So if you're able to talk the whole sentence and they direct you to the correct location, it's gonna be really helpful." - Delivery Associate

Long pauses

The most frequent issue participants experienced when testing the IVR phone service was encountering long pauses from the prompt after speaking their input. Participants felt that there was an awkwardly long pause after they would speak, waiting for the automated phone system to respond. This led to some participants repeating their answers, doubting if the system was working correctly. Since drivers feel highly pressured by time during their routes, even a short delay from the IVR system feels like a long period of time wasted. Because the usability testing sessions were conducted in a delivery station, the IVR system could have been picking up on ambient noise and interpreting it as user voice input.

"The pause for sure. The pause.. Because I know there's a balance between like you want to wait for the talker to be done." - Delivery Associate

Prompts cut off

Three participants encountered an issue of the IVR system output stopping midway through a statement. Because of this, participants did not hear the last part of a given prompt, missing out on important information or questions. They then were not able to answer the prompt correctly, or attempted to answer based on the limited information given by the phone system.

Prompt wording

There are few opportunities noted from participants to adjust vocabulary and statements spoken by the phone system prompt that would improve driver understanding. During the "Are you a driver or customer?" prompt, the tone of the automated voice makes it seem like a yes or no question, rather than one or the other. We can re-phrase this question, or investigate if the automated voice inflection can be adjusted. There was also some mild confusion from participants around the "Crisis" line terminology. Since drivers are accustomed to seeing "Emergency Help" as the term used in the Rabbit app, we should ensure this terminology is consistent across different contexts to accurately identify the department they are calling. One participant questioned the "assault" mention as an example prompt in the IVR workflow - they thought if a driver was experiencing an assault, they should have



called emergency services instead or answered “yes” to the “Are you injured or in danger?” question.

“Assault?” I would just pick up the phone and call emergency services. Maybe the other option should be LMET, driver support, or reporting an injury? Because that’s where it gets frustrating having to hang up and then go back. Or it could be like, ‘Is this an emergency involving a person or object, maybe?’”
- Dispatcher

The lengths of the automated voice prompts seemed adequate for participants, and they tended to directly repeat the examples given when asked to describe their situation - “delivery issue”, “accident”, or “assault”. Since the voice recognition system more accurately routes full sentence descriptions like “I have a delivery issue”, we can consider changing the examples to full sentences, anticipating that drivers will repeat them verbatim. There also is an opportunity to shorten the overall time taken by the IVR prompts by combining the “Welcome to Amazon” and “You have reached the Amazon Crisis Line” statements since they are redundant. We should continuously evaluate the word choice and length of the programmed IVR prompts, in order to reduce redundancy and maximize efficiency in connecting drivers to agents quickly.

Text option

A small number of participants had a moment of hesitation after listening to the first “Are you injured or in danger?” question. They seemed to look at their phone, ready to press 1 or 2, based on their existing mental model of call menu options. After realizing the IVR was expecting voice input, the participants verbally responded accordingly. Since drivers are accustomed to pressing their phone number keypad to interact with automated call services, this new voice-based system may take time for drivers to learn, since it is a modern pattern that isn’t commonly used in other sectors of drivers’ daily lives.

Some participants were curious if there was a text or chat-based option to connect with an LMET agent, referencing the positive experience they have had with the SDS chat option. They suggested that it would be easier to communicate long ID numbers, useful for drivers that cannot communicate verbally in the moment or who have heavy accents, and essential for deaf/hard of hearing drivers who need assistance. A text or chat-based option could be an additional future solution to improve accessibility and provide flexibility to drivers in diverse contexts.



Round 2

After the WWOSTech development team implemented improvements to the IVR system based on the first round of findings, the UX team conducted a second round of usability testing with 13 participants, including a Flex DP (Delivery Partner). Participants made a total of 19 test calls with a 95% success rate (18 successful, 1 unsuccessful). In addition to the significant improvement of successfully routing calls to the correct department, participants noted that the call system was more efficient and responsive than the first round of usability testing. The IVR system also correctly routed a participant with a notable accent, an improvement from the first iteration.

"This process is quicker, at least, so instead of calling and going, oh my God, 'press one for...'. But this is more responsive." - Dispatcher

Prompt interrupted

The top issue identified during the second round of usability testing is the how the IVR system interacts with users whose speaking overlaps with the phone prompts. Since some prompts like the stated examples were lengthened since the first round, we found that more drivers started speaking before the prompt was finished. One of the more advanced users tried to bypass the prompts altogether by stating their problem at the beginning of the call. This may happen more frequently after launch as drivers become more familiar the sequence of prompts after multiple calls. Upon hearing a user voice during a prompt, the phone system would stop, pause, and repeat the prompt from the beginning. This caused annoyance and wasted time for the participants. We should perform further testing to explore how the IVR system can more effectively and gracefully handle overlapping speech input.

Long pauses

In comparison to the first round of usability testing, there was a remarked improvement in the responsiveness of the IVR system receiving user voice input. Accordingly, there was a reduction in the number of long pauses participants had to wait through for the phone to respond to their input. There were still a few occurrences, presumably from the IVR picking up ambient noise or voices from inside the delivery station.

"I figured it was like picking up a voice but at first it was kind of confusing." - Delivery Associate



Prompt wording

After changing the three stated examples from the IVR from one-word to full sentences, there was an increase in participants describing their issue by repeating the full sentences verbatim, improving the IVR accuracy to route them correctly.

Concerning the added IVR prompt of “We understood your response, you are being connected to the team to assist”; participants mostly appreciated the verbal validation, but one participants didn’t trust that the IVR system actually understood their response. There is an opportunity here to shorten this statement specifically, to still provide verbal validation, but not take up as much time. For some final refinement, we should also test how the IVR system handles filler words, like “umm”, “hmm”, “uhh”, and different jargon for “yes” and “no”, such as “yeah”, “yup”, “nah”, “nope”.

List of Scenarios

Below are listed all of the real-world scenarios that participants mentioned that they’ve experienced while on the road during all rounds of usability testing.

LMET	SDS
Hurt back	Amazon Locker has a black screen, screen is dark from sun damage
Sprained ankle	PIN on delivery is incorrect, PIN doesn't work
Bit by dog	Business closed, delivery location closed, gate closed
Assault	Wrong address, address not found, can't find address
Accident, collision with other vehicle, fender bender	Package location, delivery location
	Pinpoint issue
	Out of the geofence
	Apartments
	Gated community
	Access issues
	Backed van into fence
	Gate closed on back of van
	Van hit a pole



	Van ran into retainer wall
	Hit an object
	Hit a tree, ran into a tree
	Hit carport awning, scraped vehicle
	Trying to deliver package into garage but garage won't close
	Customer doesn't have one-time password
	Need to contact customer
	Customer unavailable, customer not answering
	Delivered a package but it's not marked delivered

Appendix

Methodology

We conducted a series of short in-person 15min sessions with Delivery Associates asking them brief questions about their experiences contacting the LMET and SDS. Using the most their most recent delivery issue or emergency as real-life examples, drivers called the demo emergency support line and describe their issue.

Participants

Name	Alias	Role	Tenure	Round 1	Round 2
DTU8					
Paul [REDACTED]	[REDACTED]	Delivery Associate (DA)	3.5 years	9/9/2024	9/26/2024
Keyonte [REDACTED]	[REDACTED]	Delivery Associate	3 months	9/9/2024	
Ryan [REDACTED]	[REDACTED]	Delivery Associate	3 months	9/9/2024	
Alex [REDACTED]	[REDACTED]	Delivery Associate	9 months	9/9/2024	
Benjamin [REDACTED]	[REDACTED]	Delivery Associate	5 months	9/9/2024	





Michael [REDACTED]	[REDACTED]	Delivery Associate	3 months	9/9/2024	
Carlos [REDACTED]	[REDACTED]	Delivery Associate	7 months		9/26/2024
Miesha [REDACTED]	[REDACTED]	Delivery Associate	3 months		9/26/2024
Victor [REDACTED]	[REDACTED]	Delivery Associate	6 months		9/26/2024
Ricardo [REDACTED]	[REDACTED]	Delivery Associate	6 months		9/26/2024
Braveman [REDACTED]	[REDACTED]	Delivery Associate	4 months		9/26/2024
Jason [REDACTED]	[REDACTED]	Delivery Associate	2 years		9/26/2024
DAZ2					
David [REDACTED]	[REDACTED]	Delivery Associate	4 months	9/11/2024	
Estephani [REDACTED]	[REDACTED]	Delivery Associate	2 years	9/11/2024	
Ngor [REDACTED]	[REDACTED]	Delivery Associate	4 months	9/11/2024	
Felix [REDACTED]	[REDACTED]	Delivery Associate	4 1/2 years	9/11/2024	
Will [REDACTED]	[REDACTED]	Dispatcher	6 years	9/11/2024	
Nishawn [REDACTED]	[REDACTED]	Dispatcher	2 months	9/11/2024	9/25/2024
Jeremy [REDACTED]	[REDACTED]	Delivery Associate	1 year	9/11/2024	
Desmond [REDACTED]	[REDACTED]	Delivery Associate	6 months		9/25/2024
Marvin [REDACTED]	[REDACTED]	Delivery Associate	1 month		9/25/2024
Sandra [REDACTED] [REDACTED]	[REDACTED]	Delivery Associate	3 months		9/25/2024





Andre [REDACTED]	[REDACTED]	Delivery Associate	7 months		9/25/2024
Flex					
Neil [REDACTED]	[REDACTED]@live.com	Delivery Partner (Flex)	6 years		9/23/2024

Call Log

	A	B	C	D	E	F	G
1	Timestamp (MST)	User	Response	Call Routed	Result	Feedback	Link
2	Round 1						
3	09/09/2024 05:01 PM	[REDACTED]	Delivery issues	SDS On Road	Successful	Long pause	Recording
4	09/09/2024 05:02 PM	[REDACTED]	Password	LMET	Unsuccessful		Recording
5	09/09/2024 05:05 PM	[REDACTED]	Package location	SDS On Road	Successful	Had to repeat answer	Recording
6	09/09/2024 07:19 PM	[REDACTED]	Delivery issue	SDS On Road	Successful		Recording
7	09/09/2024 07:20 PM	[REDACTED]	Delivery issue	SDS On Road	Successful		Recording
8	09/09/2024 07:21 PM	[REDACTED]	Business closed / I have a wrong address / The PIN on my delivery is incorrect	LMET	Unsuccessful	IVR didn't recognize multiple answers	Recording
9	09/09/2024 07:43 PM	[REDACTED]	Delivery issue	SDS On Road	Successful		Recording
10	09/09/2024 07:59 PM	[REDACTED]	Amazon locker	LMET	Unsuccessful		Recording
11	09/09/2024 08:20 PM	[REDACTED]	Delivery issue	SDS On Road	Successful		Recording
12	09/09/2024 08:22 PM	[REDACTED]	Delivery issue with trying to deliver a package into garage but	SDS On Road	Successful		Recording



			garage won't close				
1 3	09/11/2024 05:17 PM		Delivery issue	SDS On Road	Successful	Long pause	Recording
1 4	09/11/2024 05:19 PM		I delivered a package and it's not marked delivered	SDS On Road	Successful	Prompt cut off	Recording
1 5	09/11/2024 05:23 PM		Customer cannot find one-time password	LMET	Unsuccessful		Recording
1 6	09/11/2024 06:31 PM		Delivery issue	LMET	Unsuccessful	IVR did not understand user's heavy accent of "driver" answer	Recording
1 7	09/11/2024 06:42 PM		I hurt my back	LMET	Successful	Prompt cut off	Recording
1 8	09/11/2024 06:45 PM		Delivery issues	LMET	Unsuccessful	Prompt cut off	Recording
1 9	09/11/2024 06:51 PM		Delivery issue	SDS On Road	Successful		Recording
2 0	09/11/2024 06:52 PM		[Injured or in danger?] Yes	LMET	Successful		Recording
2 1	09/11/2024 07:29 PM		Delivery issues	SDS On Road	Successful		Recording
2 2	09/11/2024 08:03 PM		[Injured or in danger?] Yes	LMET	Successful		Recording
2 3	09/11/2024 08:04 PM		Do I just say something?	LMET	Successful	Routed unrecognized phrase correctly	Recording
2 4	Round 2						
2 5	09/23/2014 11:14 AM	Neil	I got in an accident	LMET	Successful	Long pause (in quiet environment)	
2 6		Neil	Adjust the geofence	SDS On Road	Successful	Didn't know what	



						"SDS" meant, interrupted prompt	
27	09/25/2024 06:18 PM		Delivery issue	SDS On Road	Successful	Long pause	Recording
28	09/25/2024 06:20 PM		[Injured or in danger?] Yes	LMET	Successful		Recording
29	09/25/2024 06:57 PM		Delivery issue	SDS On Road	Successful		Recording
30	09/25/2024 06:58 PM		Vehicle accident / [Only vehicle?] Yes / [Pedestrian or animal?] No	SDS Case	Successful		Recording
31	09/25/2024 07:04 PM		Delivery issue	SDS On Road	Successful	Interrupted prompt	Recording
32	09/25/2024 07:56 PM		Pinpoint issue	SDS On Road	Successful		Recording
33	09/25/2024 07:58 PM		I hit an object	SDS On Road	Successful		Recording
34	09/25/2024 08:34 PM		I need to report a vehicle accident / I need to report an incident	LMET	Successful	IVR didn't understand user's first answer 2 times	Recording
35	09/25/2024 08:36 PM		Vehicle accident / [Only vehicle?] Yes / [Pedestrian or animal?] No	SDS Case	Successful		Recording
36	09/26/2024 05:42 PM		Delivery issue	SDS On Road	Successful		Recording
37	09/26/2024 05:44 PM		A vehicle accident / [Only vehicle?] Yes / [Pedestrian or animal?] No	SDS Case	Successful	Prompt cut off, long pause	Recording
38	09/26/2024 06:20 PM		I have a delivery issue	SDS On Road	Successful		Recording



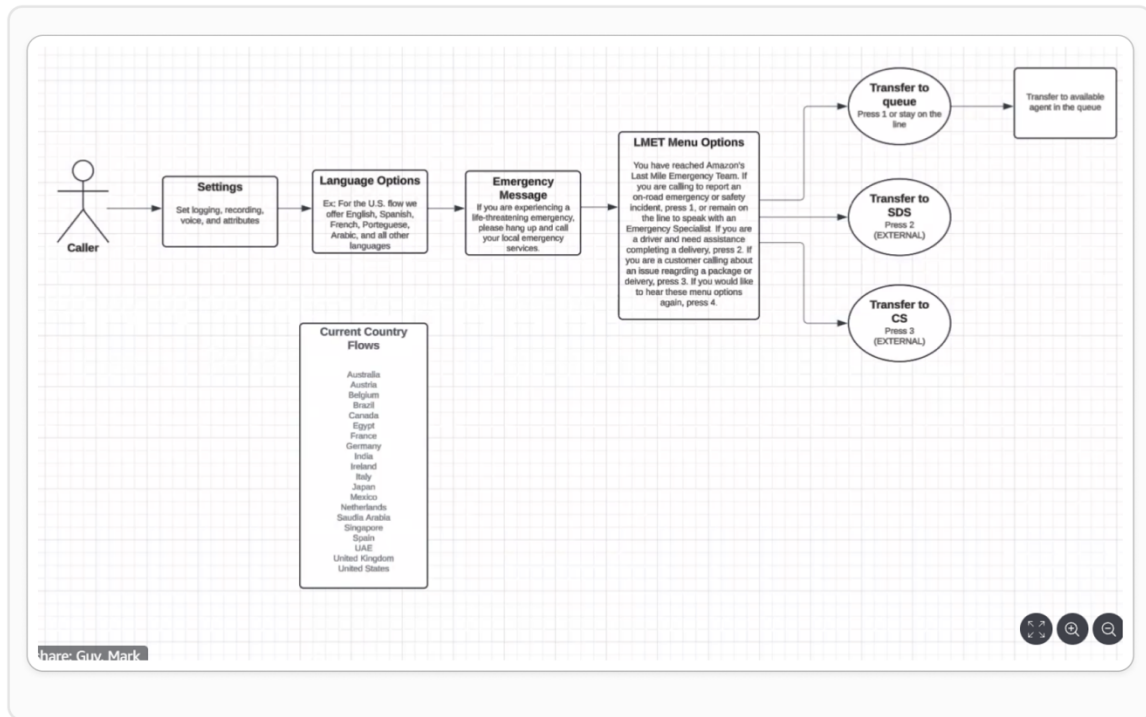
39	09/26/2024 06:22 PM		[Injured or in danger?] Yes	LMET	Successful		Recording
40			Vehicle accident / [Only vehicle?] Yes / [Pedestrian or animal?] No	SDS Case	Successful		
41	09/26/2024 07:13 PM		A vehicle accident / [Only vehicle?] No	LMET	Successful		Recording
42	09/26/2024 07:17 PM		I have a delivery issue with, the PIN is wrong and I can't deliver this package.	SDS On Road	Successful		Recording
43	09/26/2024 08:05 PM		Locker support	LMET	Unsuccessful		Recording
44	09/26/2024 08:07 PM		I have a delivery issue	SDS On Road	Successful		Recording
45	09/26/2024 08:15 PM		Delivery issue	SDS On Road	Successful	Prompt cut off	Recording



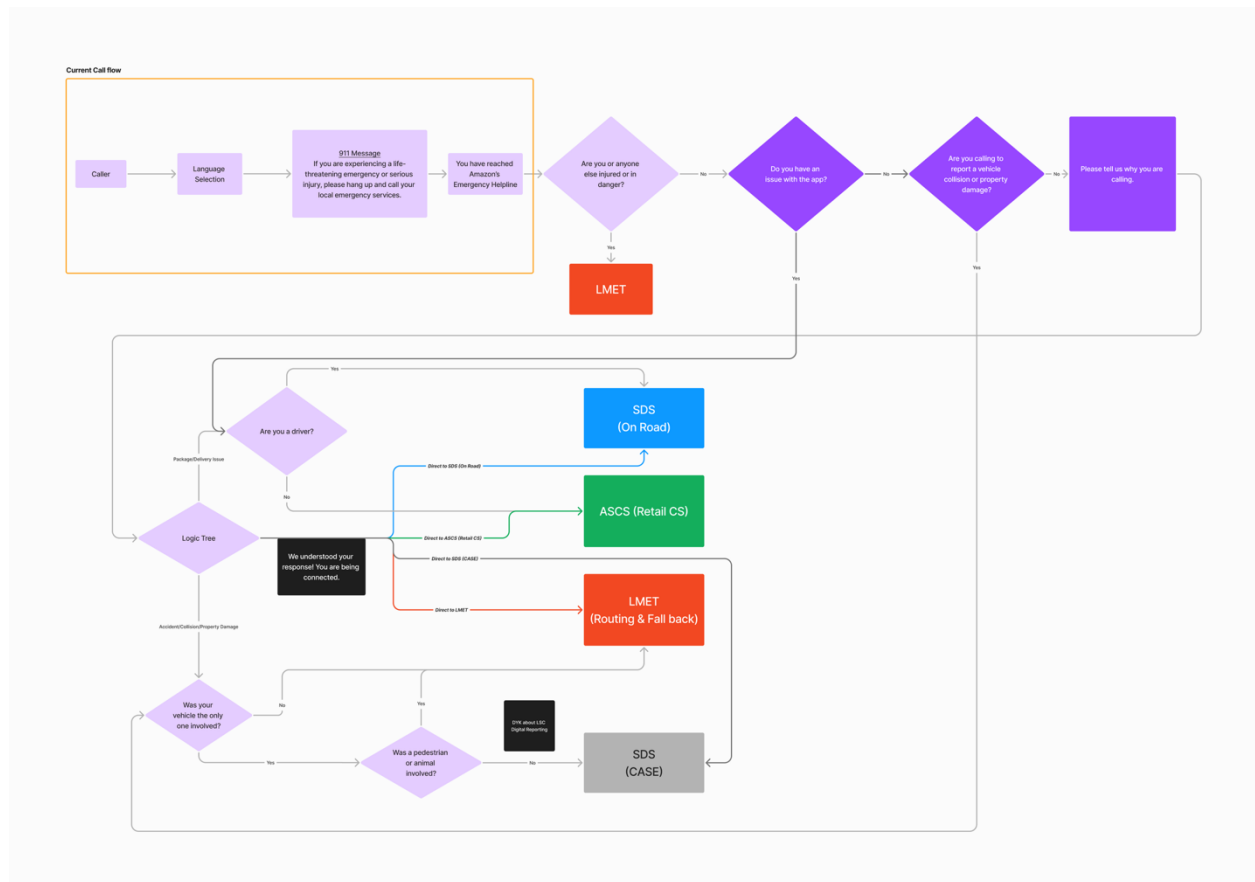
Images

[1]

Current



[2]



Glossary

Term	Definition
DA	Delivery Associate
DP	Delivery Partner
DSP	Delivery Service Provider
IVR	Interactive Voice Response
LMET	Last Mile Emergency Team
SDS	Shipping and Delivery Support
UX	User Experience
WWOSTech	Worldwide Operations Security Technology





Links

Dovetail: [Anecdotes and Analysis](#)

[Positive feedback](#)

[Long pauses](#)

[Prompts cut off](#)

[Prompt wording](#)

[Text option](#)

[Round 2 feedback](#)

Research Plan: [LMET IVR Usability Testing - Research Plan](#)

Proposal: [LMET IVR Proposal](#)

Figma: [LMET IVR Proposed Workflow](#)

