DESIGNING A PROACTIVE CONTEXT-AWARE AI CHATBOT FOR PEOPLE'S LONG-TERM GOALS

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MOTIVATION

- When people pursue new complex goals (e.g., lose weight, learn a new language), they may not know wher to start or what to do. Seeking advic can be time consuming, and other may not always be aware of th specific daily contexts that th individual experiences, making harder to tailor the advice to them.
- Language models have emerged a popular sources for informatio seeking and goal planning. Howeve

User Message "I have ten minutes of free time,	Since you're at a library, I would suggest looking for books on physical fitness and healthy eating.
but my shoulder is sore. Tell me something to do."	Search for books on fitness and healthy eating
+	Steps:
User's Context	1. Go to the non-fiction or health section
Current Location: library	of the library.
Nearby Locations: park, grocery store, cafe	2. Look for books on a variety of topics
<pre>① Time: afternoon</pre>	such as strength training, cardio
□ Day of Week: Saturday	fitness, stretching, or nutrition.
LLM Chat Seather: 65°F, Partly Cloudy	3. Alternatively, you could go to the food
Available Tools: smartphone, headphones	section and search for cookbooks with health-conscious recipes.
	4. BONUS: If you can find books written i
	French, these could also help you with
	your goal to learn French.
	5. If there is a librarian around, as them for
er's Profile	help finding the right book.
Name: Alice	6. If you want to take these books home,
Age: 35	check them out at the front desk.
ender: Female	L
• "Stay physically healthy"	
 "Learn French" 	You can also take the books to the
Attributes:	nearby park to read, since the
• "I like listening to music"	weather is nice. Afterward, I may
am introverted"	suggest buying healthy foods at

they are not adaptive to the user' individual attributes or real-tim contexts, and are merely reactive t the user's prompts rather that proactively guiding the user a opportune moments.

 We designed an LLM-based chatbe app that proactively recommended actions to the user for their long term goals as they go about the day, based on context factors that can be detected or inferred by th user's phone, the user's profile, an the explicit questions and feedbac that the user gives.

DESIGN OBJECTIVES (from early internal design feedback) –

- **Personalization:** Adapt to users' goals and attributes and remember all past (1) interactions with the user.
- **Contextualization:** Adapt to users' real-time and changing contexts. (2)
- **Shared Agency:** Provide assistance both reactively (user-initiated) and proactively (3) (system-initiated).

- cardio rition.
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- books home, nt desk.

oks to the ce the rd, I may oods at the nearby grocery store.

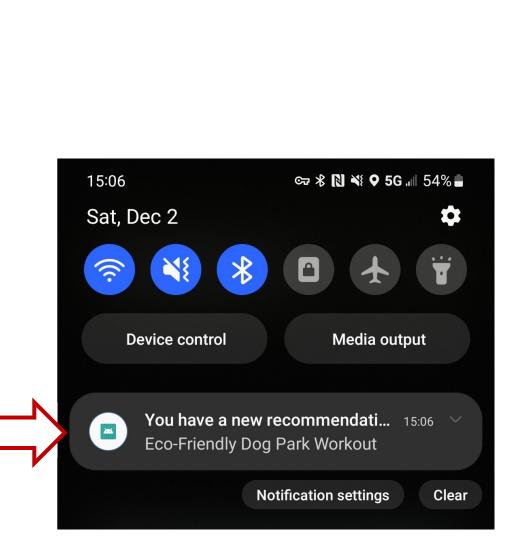
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Happy reading Alice!

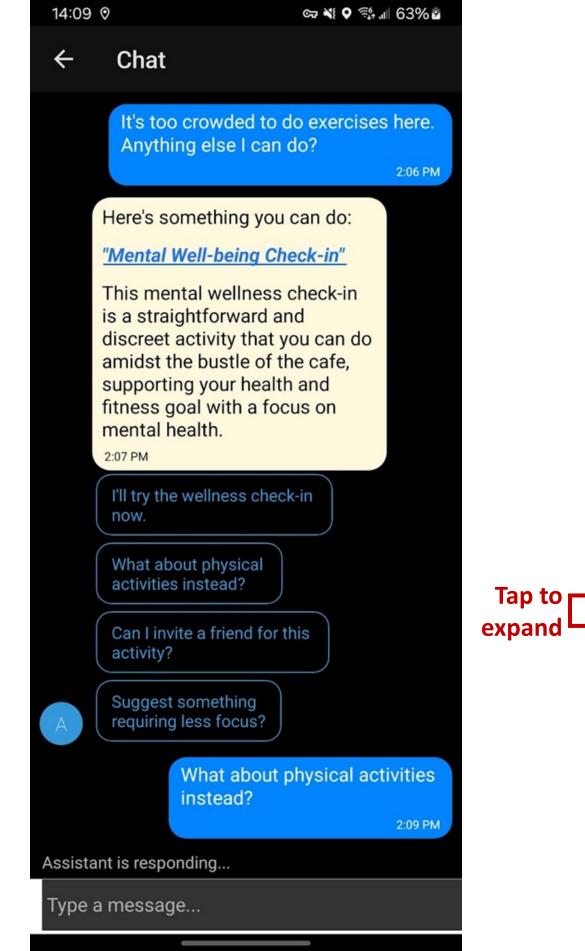
KEY FEATURES

- **'Always-on' app** that can be used in the foreground (through the chat interface) and in the background (through periodic push notifications) as the user goes about their day.
- Tracks and considers the user's context when delivering recommendations.

Flexible Interaction: Adapt to a variety of user queries. (4)



The user receives a push notification about a new action recommendation from the chatbot.



The 'chat' view, where the user converses with the chatbot.

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The 'action details' view, where the

user can view 'structured details' about a recommended action.

"I like evereising while listening to music

15:59

Lesson

Supported Goals:

"Stay fit"

"Learn Chinese"

Steps:

The chatbot lets the user log and keep track of the actions they have completed.

PILOT FIELD STUDY

- Two participants used the chatbot for 2.5 weeks for their real goals and in their real daily contexts.
- Participants found the chatbot useful for **action discovery**, its proactiveness, and its ability to adapt and personalize its suggestions with low effort.



RESEARCH

FUTURE WORK

- Explore the types of **roles** that these types of chatbot agents can play in individuals' goal pursuits, including for:
 - **Long-term** goal planning
 - **Progress** tracking Ο
 - Providing **motivation** and **accountability** Ο
- Improve the chatbot's outputs through **more effective prompting** and context inputs.
- Explore ways to improve and balance **user agency**.