This task cannot be started at this time

Team Information

TEAM INFORMATION

Please provide us information about your team and your project.

MIT Team Lead

Pronouns:	(No response)
First Name	Swapneel
Last Name:	Mehta
MIT Email:	swapneel@mit.edu
MIT Course Number:	(No response)
Graduation year:	(No response)
Undergraduate or Graduate:	(No response)
MIT ID:	(No response)
Cell Phone:	

Team Name

Sakhi

Team Email

simppl.collabs@gmail.com

Project Pitch

Please provide a short 2-4 sentence overview of your proposal.

We propose to develop a claims verification system

Primary Sector

Please select only ONE primary sector. Select the option that best categorizes your submission.

No Responses Selected

Other Sectors

We recognize that often projects are cross-sector. Select all other sectors that you believe apply to your project.

No Responses Selected

Project Location

City and Country

(No response)

Team Members:

Please tell us the total number of members including yourself, the team lead.

7

Team Member 2:

This team member does not have to be a member of the MIT community. Please complete the fields that are applicable.

ronouns:	No response)
irst Name:	Swapneel
ast Name:	Mehta
mail (If MIT student, please provide MIT mail):	swapneel@mit.edu
Indergraduate, Graduate, and Other:	No response)
IIT Course Number:	No response)
IIT ID:	No response)
Cell phone:	+1 551 328 7074

Team Member 3:

This team member does not have to be a member of the MIT community. Please complete the fields that are applicable.

ronouns:	(No response)
irst Name:	Raghav
ast Name:	Jain
mail (If MIT student, please provide MIT mail):	aghavjain106@gmail.com
ndergraduate, Graduate, and Other:	No response)
IIT Course Number:	No response)
IIT ID:	No response)
Cell phone:	+91 9034043285

Team Member 4:

This team member does not have to be a member of the MIT community. Please complete the fields that are applicable.

ronouns:	He/Him
irst Name:	Nahush
ast Name:	Patil
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Undergraduate, Graduate, and Other:	Undergraduate
MIT Course Number:	(No response)
MIT ID:	
Cell phone:	+91 9167412016

Team Member 5:

This team member does not have to be a member of the MIT community. Please complete the fields that are applicable.

ronouns:	He/Him
irst Name:	Pratyay
ast Name:	Banerjee
mail (If MIT student, please provide MIT mail):	pratyaybanerjeex@gmail.com
Undergraduate, Graduate, and Other:	Undergraduate

IIT Course Number:	No response)
IIT ID:	No response)
Cell phone:	+91 8420342836

Team Member 6:

This team member does not have to be a member of the MIT community. Please complete the fields that are applicable.

ronouns:	She/Her
irst Name:	Mrunmayi
ast Name:	Parker
mail (If MIT student, please provide MIT mail):	mrunmayirparker@gmail.com
ndergraduate, Graduate, and Other:	Undergraduate
IIT Course Number:	No response)
IIT ID:	
Cell phone:	+91 9769953236

Team Member 7:

This team member does not have to be a member of the MIT community. Please complete the fields that are applicable.

ronouns:	No response)
irst Name:	No response)
ast Name:	No response)
mail (If MIT student, please provide MIT mail):	No response)
ndergraduate, Graduate, and Other:	No response)
IT Course Number:	No response)
IT ID:	No response)

Community Partner

Organization, company, client, community leader, etc. who is helping to inform and guide your project. This is the group you plan to work with, should your team receive a grant to pilot the project.

Reminder: Although you do not need a community partner secured to enter the initial proposal round, a partner is STRONGLY ENCOURAGED and favorably regarded in the final round. Provide the name, title, and contact information for your partner.

ommunity Partner Name:	No response)

Organization Affiliation (if applicable):	No response)
URL (Website, LinkedIn, etc.):	No response)
mail:	No response)
hone:	No response)

How did you learn about us?

Please check all that apply.

No Responses Selected

Form for "Your project proposal"

Review these questions and answer them as thoroughly as you can. For those sections where you may not have answers yet, we encourage you to note honestly what your work in progress is and where you have questions. Our proposal reviewers will then offer you some guidance. It does not need to be perfect, but we want it to be thoughtful.

Executive Summary

Write a brief summary of what you have shared in this initial proposal. (100 characters)

Sakhi is a Bengali WhatsApp chatbot sharing accurate menstrual health and hygiene information.

Website

If you have one

https://sakhi.simppl.org

How long have you been working on your project?

3 months

Which stage best describes your project?

Early stage / Pilot

The Problem/Challenge

Background and Context

This is an opportunity to show the research you have done to support your project. Describe the need and opportunity for your idea by articulating the problem you're addressing and the community it supports. Help us understand how the community is underserved and why it is important that the need be filled. (1000 characters)

Every day, more than 300 million women are going through their menstrual cycle. Many women and girls do not have the right information due to constrained education and the stigma around this subject. Only 6% of girls in Bangladesh have a menstrual hygiene management (MHM) education and 53% of adolescent girls know about menstruation before their first period.

Around 41% of Bangladeshi girls take an absence from their schools during their period, missing 2.5 days a month, on average. The popular WASH literacy-focused physical intervention succeeded in improving MHM education for women and girls in Bangladesh. However, it is extremely challenging to scale such physical interventions to large populations without significant investment of time and resources. We leverage large language models (LLMs) to scale literacy interventions. Alongside a local partner, we propose a WhatsApp chatbot that generates responses grounded in accurate, verified knowledge from international health agencies.

Explain Prior Attempts at Solution

What other solutions have been developed to address this problem? Consider solutions in different contexts that may be relevant, identifying the benefits and drawbacks of prior attempted solutions. Why were prior solutions inadequate or not as helpful as possible? (750 characters)

Most prior attempts have pursued physical deployment including school, peer, or healthcare provider-led camps, information kits, and education to influence psychosocial factors, address harmful taboos and stigma. They often struggle to reach remote areas and may lack interactivity. Earlier digital solutions, such as mobile apps and websites, provide accessibility but may require internet connectivity, excluding marginalized communities. The proposed WhatsApp chatbot leverages existing communication channels, ensuring widespread accessibility. We overcome these barriers by combining language models, local partnerships, and user-friendly platforms for effective and culturally sensitive menstrual health education.(No response)

Your Connection to this Problem

Help us understand your motivation to working on this project. How did you and your team members learn about it? Why are you passionate about addressing it? What knowledge, skills, or experience does your team have to contribute to your solution? What is your familiarity with the community? Have you been to the project location? (750 characters)

We are

The Solution

Our Innovation

Explain your innovation - the technology, process, idea, business model, etc. explained in detail. What have been your major milestones? (1000 characters)

(No response)

The idea is to create an easily accessible chatbot which provides accurate responses in Bangla and Benglish for users based in rural areas of Bangladesh.

We have collected data from verified resources such as WHO. Used LangChain as an interface to interact with the LLM along with tracking the context. The RAG model for question answering was incorporated into a Flask application that handled the inference pipeline execution. The application server is hosted on GCP. Automated messages and created customized templates using WhatsApp Business API.

Why Is It Innovative

Explain exactly why you believe it is innovative. Is your project something new altogether or a new combination of different parts and systems? How do you distinctly close a social gap or ameliorate a societal or environmental challenge in a way that no one else does? (750 characters)

We have created a chatbot which responds in Indic languages such as Bangla, thus making it accessible for the low resource regions of Bangladesh. It uses WhatsApp, a platform used by 44 million Bangladeshi users to interact with the chatbot [1]. By providing accurate information about menstrual health, it fosters a sense of safety amongst young girls and women to openly ask their questions without feeling insecure. We have designed our system with safety measures such as rate limiting, content filtering, and data privacy protections. By curating verified content from trustworthy sources, our system enables users to learn interactively at their own pace about sensitive topics like health and hygiene, while minimizing risks from misinformation.

[1] -https://worldpopulationreview.com/country-rankings/whatsapp-users-by-country

Why It Is Significant

Why is this innovation a significant improvement upon previous work or existing solutions? How does it address the problem/challenge? How does your work benefit or complement stakeholders already working in this sector? (750 characters)

Traditional approaches like educational workshops and printed materials often struggle to reach remote areas and face-to-face sessions may perpetuate societal taboos. Moreover, printed materials may lack interactivity. Digital solutions, such as mobile apps and websites, provide accessibility but may require internet connectivity, excluding marginalized communities. Some initiatives rely on community health workers, but resource constraints limit their reach. The proposed WhatsApp chatbot leverages existing communication channels, ensuring widespread accessibility and personalized engagement. Past efforts may have faltered due to insufficient scalability, cultural insensitivity, or a lack of technological integration. Our solution aims to overcome these barriers by combining language models, local partnerships, and user-friendly platforms for effective and culturally sensitive menstrual health education.

Current Stage of Development

Current stage of development: How long have you been working on this innovation and where are you in the development process? (500 characters)

We have been working on the first version of the chatbot for the last 4 months. We have reviewed the accuracy of responses at every stage of the development in both English and Bangla languages. The chatbot has given accurate responses with minimal hallucinations. We have currently deployed the first version of the chatbot Sakhi to the Wateraid community members.

Feasibility

Project Logistics

Where will you be working? Will the project take place in multiple locations? How much time will you be spending with the communities where you're launching the project? (500 characters)

The project will take place in Bangladesh: Dhaka and Shyamnagar will be the two pilot sites and we will scale it out from there. Our team members in India and Bangladesh will visit the site routinely and we will receive weekly reports from WaterAid staff assisting in project deployment and day-to-day monitoring of insights from anonymized and privacy-preserving data extracted from collected conversations by consenting users.

Community Partnerships

This is an important part of the proposal as it helps demonstrate that your project will have traction in the community where you intend to work. What is your relationship with the community? What is their role in your project? How have you incorporated stakeholder voices and leadership (particularly those with lived experiences) in the design and processes? You are encouraged to parter with proximate stakeholders (organization, individual, company, etc.) who will assist you with design, implementation, or support in an equitable, collaborative, and ethical manner. (1500 characters)

We have incorporated continuous feedback from several advisors and app developers who are female, speak Bengali, have healthcare experience, and understand the technical system to adopt a community-based research design. We also partner with WaterAid Bangladesh to deploy our project in a safe, reliable, and trustworthy manner capitalizing on the past relationships WaterAid staff have built with the community to reduce the friction that arises during the adoption of a new technology. Learning from past challenges, we have created a chatbot that speaks Bengali, 'Beng-lish' a mix of both Bengali and English, and can deal with colloquial sentence framing efficiently. It is

deployed on WhatsApp for it to be extremely simple to chat with, in a medium familiar to over 44 million Bangladeshis who use the platform actively. WaterAid staff have been helpful and defined a clear Memorandum of Understanding for us to share the technology with them and assist them in deploying this chatbot at scale for a large number of their users. That allows for clear expectation-setting and communication with the WaterAid team.

Additional Stakeholders

Who are the key stakeholders in the system of the challenge that you have identified? What is their influence, position, and power/privilege? What is your influence, position and power/privilege in relation to them? How have you engaged them? What other relationships will be necessary to build in the next year as you implement your project? Why so? (800 characters)

1. To effectively serve Bengali schoolgirls and their families, we prioritize community engagement, seeking insights from families and healthcare workers to grasp the sociocultural context influencing their situations. This approach ensures our interventions align with community needs, avoiding technological misfits.
2. WaterAid Bangladesh's local chapter plays a pivotal role, facilitating in-person interviews, user feedback, and providing domain-specific expertise. Continuous dialogues with the nonprofit staff guide project planning, testing, and launch, ensuring our digital intervention addresses real-world challenges without disrupting daily lives.

Challenges to Implementation

Acknowledge some of the potential challenges for implementing your project. How might you proactively avoid or mitigate setbacks? What steps can be taken to lessen risks? Please explicitly list your assumptions as you consider risks. (800 characters)

1. Lack of reliability around responses generated by the large language model underlying the chatbot: to mitigate this we are collaborating with a stealth startup on GenAI reliability measurement launched by an expert on misinformation and GenAI, Prof. Srijan Kumar at Georgia Tech.

2. Scaling responses and reducing latency when concurrent chats are initiated: There is a significant engineering cost incurred when we have long conversations with lots of users simultaneously. Currently, we are rate-limiting the bot to 20 messages in 24 hours for each user, and it resets after the period expires.

3. Out-of-domain conversations: When users initiate conversations that are out of domain or that we haven't provided verified data for, the chatbot responds with a clarification that it does not have data to respond from within the verified documentation provided. We are also setting up a system to flag this so we can update the documentation. But this is our safeguard against the bot providing unreliable medical misinformation to end users.

Measuring Impact

What are the expected benefits (long and short term) of the project? Who and how many people will specifically benefit? Lay out a set of specific metrics with which you will measure the impacts of your intervention and note how you will use these metrics to inform / adapt your model. Sometimes, it's hard to enumerate and that's OK as well but tell us in what way a positive impact will be demonstrable. (750 characters)

The potential impact of this chatbot is to reach 14 million schoolgirls and adolescents who are suffering from 'period poverty', describing a lack of access to accurate MHM information. We will collect engagement data, and measure user ratings, accuracy, and relevance of answers to improve the system. We expect up to 2500 users in Dhaka to engage with the system. External metrics such as self-reported uptake of menstrual hygiene products will help determine the behavioral change that this system drives. We will conduct interviews with users of the system to develop qualitative estimates of its performance and gaps.

Ethical and Sustainability Considerations

Tell us about your ethical community engagement framework. What are some of the potential unintended consequences? What steps will you take to ensure that the project produces meaningful impact and is not negatively disruptive? For example, are extra burdens being placed on the community? Please explicitly list your assumptions as you consider risks. (800 characters)

For data privacy, we created user agreements and consent forms in Bengali. All data is stored in an encrypted database without personally identifiable information. With generative AI systems, our main challenge is to ensure reliable responses are generated promptly to maximize user benefit. To mitigate hallucinations, we ensure that verified and up-to-date information is available to the chatbot. To avoid abuse, we are rate-limiting responses, setting up guardrails, and conducting adversarial testing to avoid abuse of this system. Former OpenAI Trust and Safety Staff are advising our product deployment and we have active monitoring of user feedback by staff.

Mentors/Advisors

Describe the set of partners, mentors, and advisors who will assist you with your project development. What roles will they serve in developing the project? What additional human resources or expertise might you need over the next 15 months? (500 characters)

WaterAid BD staff and community partners aid in deploying, monitoring, and promoting in local schools and centers
SimPPL - students, researchers, and professionals with lived experience in the global south who have designed scalable AI systems for social good
Advisors - Armir Celiku, Sadhli Roomy are Tech and Policy Professionals experienced in MHM and using large language models for low-resource languages
We will need more analysts speaking the language for evaluation, and monitoring abuses

Budget

Estimate the amount needed to fund your project. (500 characters) If you would like to provide a detailed and realistic vision of what the project will cost, upload a file under "Other Supplemental Documents" below. Your budget may exceed the top award amount from IDEAS; if so, indicate where other sources of funding may come from. If you were to receive an IDEAS award, how would you allocate the funding? Describe how it fits into your overall implementation plan. If selected to be a finalist, you will receive a seed grant of a $1,000. You will have the opportunity to pitch for an additional award of $7,500, $10,000, $15,000, or $20,000 in April 2024. Our funding cannot be used for business expenses, such as salaries or legal fees. Funds can be used towards travel expenses, materials and supplies, equipment, manufacturing, maker space fees, app developers, and other services required for launching your project. How would you use the funds? ******Please note that our funding is also taxable. For international students, taxes are automatically deducted from the grants and for national students, students are expected to self-report on their Form 1040 submissions. MIT currently does not automatically report these grants to the Federal Government.

20,000

Other Supplemental Documents

You might choose to upload a detailed and realistic vision of what the project will cost here. It might be a letter of support from a community or something that will strengthen your submission.