Empowering Changemakers

Stories of Innovation and Impact

Overview

Quest Alliance, in collaboration with the Amazon Future Engineer (AFE) Program, is bringing computer science education to underserved communities in Odisha and Telangana.

Focused on secondary grade students (7th - 10th) in government schools, particularly those from Scheduled Caste/Scheduled Tribe and minority groups, our mission is to enhance access and opportunities.

Our work in the two states is anchored on the following strands of the AFE program:

Explore: Introducing coding basics through Hour of Code, class chats with Amazon volunteers, and a chatbot on WhatsApp for accessibility beyond school hours.

Learn: Utilizing AFE's Computer Science Discoveries, CS fundamentals in Scratch, and Quest's hackathon approach, students undergo a 20-hour bootcamp to ideate and build working prototypes.

Hyperlocal Initiative: Working in 12 schools near Hyderabad, our Hyperlocal teams adopt schools, contributing to projects like bootcamps and fostering volunteer connections with students in computer science themes.

Educator Capacity Building: Empowering educators with computer science fundamentals, ensuring a holistic impact on both students and educators.

Quest Alliance, driven by the AFE vision, is taking strides to transform education and empower students for a future in computer science.

Timeline and Progress

June 2022

Quest Alliance joins the Amazon Future Engineer program.

98,380 students in 830 schools

100 volunteers

participated in class chats, connecting with over 6000 students.

15,000 students

onboarded onto the chatbot.

500+ prototypes

have been developed by 8,170+ students through 95 bootcamps.

June 2023

Scaled the program in Odisha and to Telangana.

336,000 students in 2,014 schools

500,000+ hours of learning

computer science fundamentals through the Explore and Learn model.

1,022 schools

across Odisha have developed projects using Scratch.

337,630+ students

in Odisha and Telangana completed an Hour of Code session.

8,863 schools

across 30 districts of Odisha are piloting the grade 9 computational thinking curriculum that was inspired by the AFE program.

Inspired by the Code Club model, the curriculum mandates the establishment of *Kaushali* clubs in every school, focusing on introducing the Hour of Code to students.

October 2023

and ongoing

AFE's approach is poised to transform education in Odisha.

1.6 Million students in 32,000 schools

Curriculum integration

In Odisha, the success of AFE's Learn x Explore approach convinced the state education department of the proficiency in computer science fundamentals that government school students can have. As a result, they've launched a statewide curriculum on computational thinking. Quest Alliance, along with Learning Links Foundation and the Raspberry Pi Foundation, joined forces to develop the grade 9 curriculum.

The case stories ahead highlight the impact on students' critical thinking, tech confidence, and future aspirations.

I Refuse to Be Defined by Gender Stereotypes: How An Amazon Volunteer Inspires A Class 7 Student

Vyshnavi grew up embracing a unique sense of style. As the youngest of two daughters, she idolized her father and found comfort in sporting masculine clothes, maintaining an androgynous appearance with a bob cut. However, upon entering Class 6, she faced criticism from neighbors, classmates, and teachers who questioned her choice to dress differently from other girls, asking,

"Why isn't she behaving or dressing like a normal girl?"

This led to bullying, which eroded her confidence. However, Vyshnavi persevered in asserting her identity, longing to embrace herself free from judgment.

Will she ever find a safe space?

Rangareddy, Telangana

A New Role Model

In January 2024, when the Quest Alliance team organized a Class Chat in her school at ZPHS Tukkuguda Boys School (Co-ed) to celebrate National Girl Child Day, Vyshnavi's perspective shifted. Soumya, a volunteer from Amazon, shared her inspiring career journey during which she candidly discussed her experience of initially failing the Army exam. However, Soumya persevered and eventually succeeded, receiving an offer letter to join the Army in four months.

Her story resonated deeply with Vyshnavi as Soumya was just like Vyshnavi! Sporting a bob cut and embracing an androgynous style with baggy clothes, Soumya exuded strength and confidence, inspiring Vyshnavi to embrace her own uniqueness. She found a reflection of herself in Soumya and was inspired by her career goals. Before this, Vyshnavi had never considered a specific career path, but after hearing Soumya's story, she too wanted to join the Army!

"Why isn't she behaving or dressing like a normal girl?"

I Possess a Multitude of Abilities

On the same day, she shared the details of the Class Chat with her parents, brimming with excitement. The story deeply touched her parents, inspiring them to remain resilient against negative comments from their community. Vyshnavi's mother also vowed to wholeheartedly support her daughter's decisions and let her live authentically. Vyshnavi is now more determined than ever to pursue her career goals. She feels a renewed sense of confidence in herself and is committed to living life on her own terms, as she shared with Ramya, our Learning Experience Assistant (LEA).

Can Electric Slippers Provide Security for Women? Students in Bolangir, Odisha Are Exploring the Idea.

In the heart of Bolangir, Odisha, a district steeped in rich cultural heritage yet faced with economic challenges, a group of middle-class students from P.R. High School embarked on a mission to address a pressing social concern – women's safety. Understanding that the safety of women poses a substantial barrier to girls' education and women's career advancement, they formulated a problem statement focused on the intersection of gender and safety.

Their vision? A society where women can freely reclaim public spaces and walk safely at night.

But the question remained: how would they confront such a pressing challenge?

Bolangir, Odisha

Identifying the Problem

During a 4-day hackathon bootcamp supported by Amazon and facilitated by Mr. Amit Pani of Quest Alliance, students first identified problems they witness in their daily lives. They then explored the root causes for these problems and brainstormed potential solutions, in a process we call the Ideathon.

Recognizing the increasing incidents of harassment during nighttime, a group of students including Binayak Panda, Akash Ranjan Barik, Akash Pande, Arjun Kabat, and Priyanshu Kumar Das understood the challenges women face when venturing outside or undertaking overnight journeys. Their observations were reinforced by the reality in their surroundings, where many women forfeit job opportunities and are compelled to remain at home due to safety concerns. Media reports of women being harassed at work or in public spaces without receiving justice further added weight to their concerns.

Building upon these reflections, they devised a solution.

Developing a Solution

For their prototype, the students ingeniously crafted the "Electric Slipper", a device designed to offer women self-defense mechanisms during their journeys. The slipper incorporates a high voltage transformer emitting 400 KW, activated by a simple touch mechanism. Their innovative solution aims to empower women to reclaim their freedom of movement without compromising their safety.

> "In today's society, it has become increasingly frightening for women to venture out at night, leading them to give up their jobs due to the lack of assistance during emergencies. We wanted to address this issue, which inspired us to create the 'Safety Chappal' for women."
>
> - Binayak Panda
> Student, Group Member,
> P.R. High School, Bolangir, Odisha

User Testing and Feedback

The "Electric Slipper" prototype was crafted with deep consideration for the voices and experiences of local women. Through discussions and observations, the students gained invaluable insights into the daily struggles faced by women, shaping every aspect of their prototype's design and functionality. Mindful of safety concerns, they're committed to refining their prototype further. They aim to enhance user safety by exploring options to eliminate the need for a manual switch, instead integrating a touch sensor controlled by a smartphone or remote to ensure a safer and more user-friendly experience.

Future Pathways

With plans to implement a more empathetic approach in future iterations, they aspire to create a product that not only safeguards but also uplifts women in their community. Though specifics are yet to be defined, their vision for continued innovation shines brightly.

How an "Hour of Code" transformed a Class 10 Student's Coding Journey

Sarfaraz Khan, an average Class 10 student at Charinangal High School, had little exposure to the concept of coding. For him, coding was a foreign term, something beyond the scope of his experience. However, when he joined the Hour of Code (HOC) class, an unexplored world unfolded.

So, how did a coding novice transform to an enthusiast through "Hour of Code"?

Jajpur, Odisha
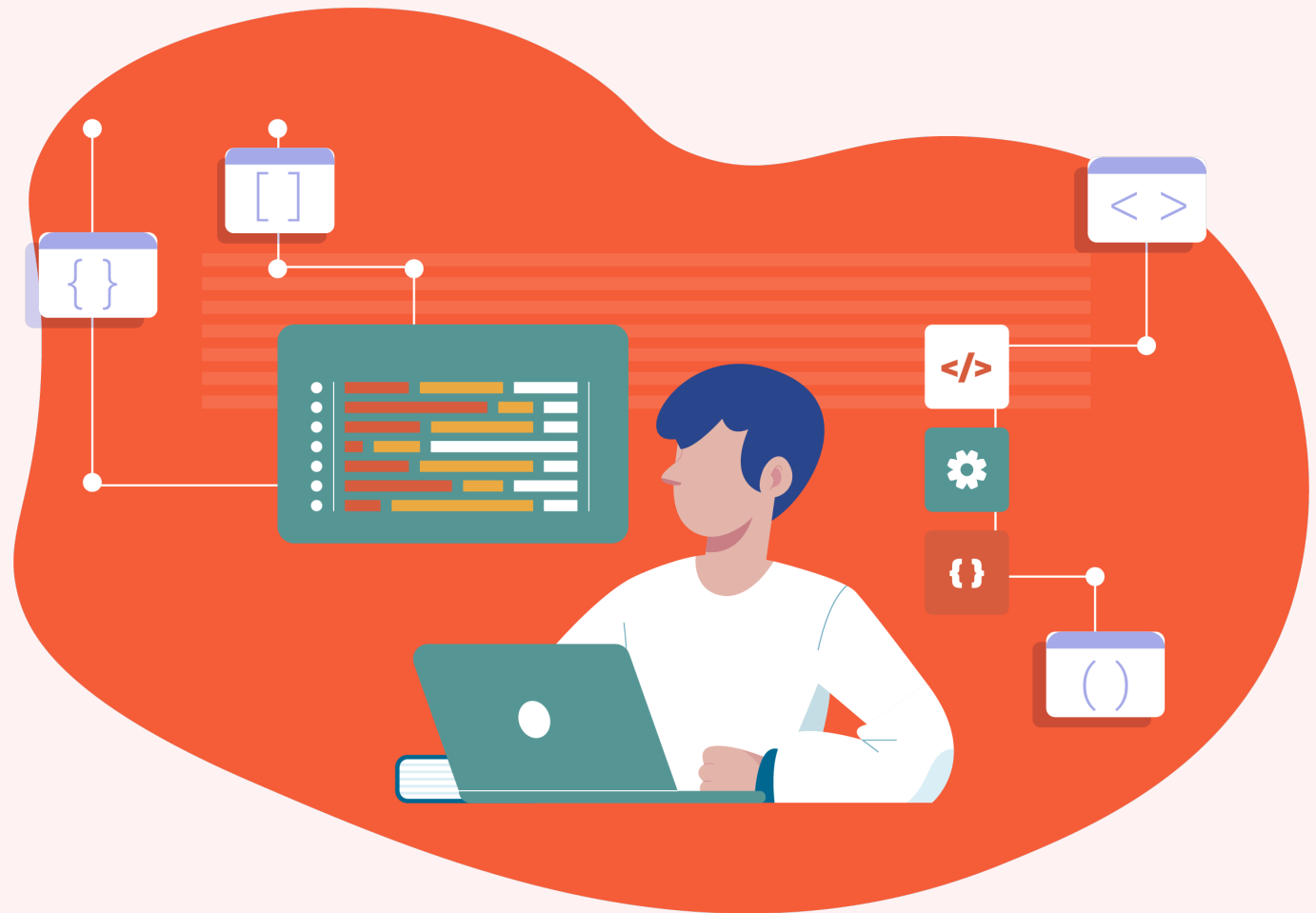
Sarfaraz's Coding Journey

Sarfaraz's coding journey started in the 'Hour of Code' class, aimed at simplifying coding and sparking students' interest through games.The curriculum cleverly included block-based coding games and interactive activities like Dance Party, Minecraft, and 3D Space Invader, encouraging him to learn the process of creating these games. This interactive approach made coding more enjoyable and understandable for him. Because of the practical exercises, he learned to translate instructions into computer operations.

The creative challenges and opportunities for problem-solving fascinated Sarfaraz which influenced him to explore block-based coding games. As he navigated through these exercises, he learned from his mistakes and continued to grow. Sharing his newfound hobby, he organized informal coding sessions during his lunch breaks and after school using the Code.org platform, where he and his friends earned certificates for completing coding stages. This also contributed to creating a sense of community among his peers.

"The term coding was alien to me. I used to think coding could be done by software engineers. So when I learnt about coding I was really excited and wanted to explore more along with my friends. I along with my friends started experimenting and ended up creating projects on Cyclone together with the help of the SCRATCH toolkits. This helped me to boost up my confidence since I was the one leading the entire procedure. I will keep continuing creating new projects presenting his day-to-day life styles so I can learn more about coding and share with my friends so they also get to learn from me."

- Sarfaraz Khan,
Class 10 student,
Charinangal High School

Future Pathways

Sarfaraz dreams of pursuing a career as a software engineer, driven by his passion for coding. By promoting an inclusive environment for experimentation and learning, he actively nurtures a vibrant coding culture within Charinangal High School, inspiring his peers to explore the world of programming and technology.

Can a Simple Alarm System Change Household Dynamics and Promote Water Conservation in Rural India?

At Janata High School in Beguniapada village, Odisha, a group of students, including Subhransusekhar, Puja, Abhisek, Ritesh, Prabhu Ranjan, Priyabrata, Arati, Priyadarsini, Puja, and Sabitri, noticed common challenges in their own households. They observed that women bore the sole responsibility for managing household chores, including overseeing the water supply. Witnessing the violent repercussions when their mothers forgot to turn off the water motor due to their focus on other household tasks, the students felt compelled to alleviate their mothers' burden and promote responsible water usage. But how can this group of children address the intricate challenges of household dynamics and water conservation?

Beguniapada, Odisha

Identifying the Problem

The hackathon process, led by Sasmita Sahoo of Quest Alliance, enhanced their ability to identify overlooked problems within their immediate surroundings. By analyzing the root causes of these problems, they gained a better understanding, allowing them to identify the issues and explore their underlying reasons.

In both urban and rural settings, gender roles persist, but the burden on women is particularly pronounced in rural areas leading to overwhelming workloads and stress. From a young age, girls are taught that household work, childcare, and tending to younger siblings fall solely on their shoulders. This places immense pressure on both girls and women as they juggle multiple responsibilities without sufficient assistance. To ease this burden, the students proposed developing a water alarm system to tackle at least one aspect of these challenges.
While they understand that the issue is multifaceted and deeply rooted in gender roles, the objective of these students is to develop a solution that eases the responsibilities of their mothers while simultaneously promoting water conservation.

Developing a Solution

The 'Water Alarm' is an intuitive prototype designed to provide timely alerts when the water level in the tank nears capacity, effectively preventing overflow. Its design incorporates essential components such as a buzzer, battery, switch, and wires. In its current iteration, the prototype triggers the buzzer, prompting manual intervention to turn off the water tank.

"The Hackathon provided an unique opportunity for girls and boys to break free from social taboos and engage in conversations. This was a much-needed experience for them."

- Minaketan Maharana
Guide Teacher, JHS, Beguniapada

User Testing and Feedback

After installing the project prototype in their own homes, the students received positive responses from their friends, relatives, and community. The positive reception sparked interest in community members to consider adopting the same solution.

Future Pathways

In the next phase of development, the students plan to implement an automated solution. This system will intelligently shut off the switch when the water reaches the overflow threshold, enhancing user convenience and promoting efficient water management. With this innovative design, their goal extends beyond their own household; they also aim to trigger similar changes in the households of their entire community.

Can Computational Thinking Clubs Redefine the Educational Landscape of Schools in Telangana?

The Computational Thinking (CT) club is a cornerstone of our Hyperlocal program, shaping a dynamic learning environment. It's a hub for inculcating a STEM mindset, promoting gender equity, and supporting well-being. It's a collaborative effort led by our Learning Experience Assistants (LEAs) and 2-3 CT Educators (/Teachers), along with 30 CT Champions (/Student representatives) from classes 6 to 9. CT Educators and Champions not only learn but also share their insights with their peers, encouraging classroom learning through peer-to-peer interaction.

How can such approaches effectively enhance classroom engagement? Let's look at examples!

Hyderabad, Telangana

Inspiring Students and Teachers Alike in Gachibowli

On January 27th, 2024, Ms. Ramya Krishna, our Learning Experience Assistant (LEA), led her Computational Thinking (CT) Club session at ZPHS Gachibowli School. This session, titled "Why I'm Here," focused on Science and Density, using stories like "The Thirsty Crow" and "The Golden Crown" to explain concepts like density and Archimedes' principle. Ramya shared the history of Archimedes' principle, including the famous golden crown test ordered by the king. She left the students and the CT Educator with thought-provoking questions:

"Why won't a stone float when we put it in water, but a piece of wood does?"

"If we put gold or iron in water, what will happen?"

This sparked the students' curiosity and left them eager to explore further.

Ganesh, a Class 8 CT champion, hurried back to his class and gathered some classmates around him to share what he learned and conducted experiments. Using iron and a bucket of water, they explored iron's behavior when submerged. Seeking further insight, they turned to their Science teacher, Mr. Jagadish, who welcomed their questions about density with great enthusiasm. Intrigued by the storytelling approach of the CT Club session, Mr. Jagadish expressed that he would integrate similar techniques into his teaching methods. Meanwhile, CT Educator Ms. Sumalatha also returned from the session and shared her enthusiasm with the other teachers. An air of excitement and curiosity suddenly filled the school!

"Why won't a stone float when we put it in water, but a piece of wood does?"

"If we put gold or iron in water, what will happen?"

A Similar Tale from Vattinagulapally

A similar burst of experimentation and inquiry unfolded at ZPHS Vattinagulapally when our LEA Pravallika led a session. While the school had limited creative spaces and resources such as playgrounds, internet connectivity, or laboratories, and teachers who encountered challenges in addressing student inquiries, the CT Club offered a unique sanctuary. Here, students are empowered to question, imagine, and express themselves freely, without fear of judgment. So when Pravallika conducted her session on Science and Density, the students came up with a whole range of questions that they wanted to pursue further. Pravallika warmly encouraged them to carry on exploring and to continue their passion for discovery beyond the classroom.

As Computational Thinking Clubs persist in kindling, motivating, and empowering students, the avenues for enriched engagement are boundless!
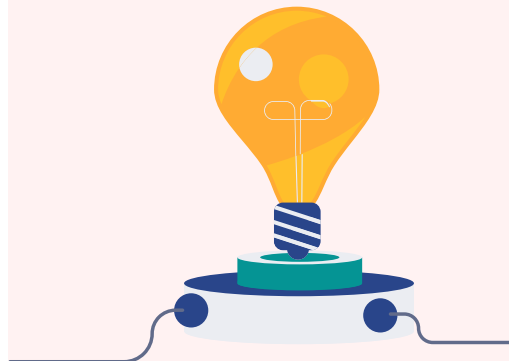
A Code Club Helps a Class 9 Student Democratize Computer Literacy in Her School

During the COVID-19 pandemic, Pritiprangya, a Class 9 student in Khordha district, Odisha, found herself and her sister enrolled at Pratap Sasan Girl's High School, a government school, due to financial challenges triggered by her father's job loss. Uncertain about what to expect from a government school, Pritiprangya took the leap and got admission. However, to her surprise, the school defied the stereotypes she had heard about government schools, presenting a different environment than she had anticipated!

But what exactly transformed her perception?

Khordha, Odisha

Pritiprangya's STEM Journey

The school was already under its 5T (technology, teamwork, transparency, time, and transformation) transformation journey. The infrastructure of the school was improving. Pritiprangya still felt that she needed more from her institution. However, her perspective shifted when a STEM club was established, prompting her to join as a STEM Champion. During a career discussion session, she expressed her interest in coding, leading her to explore Scratch under the guidance of her STEM teachers.

Pritiprangya quickly developed a passion for coding and computational thinking, creating animation videos and games. Under the guidance of her STEM teachers, Pritiprangya discovered her passion for coding and computational thinking, delving into platforms like Scratch. She quickly mastered coding basics and even began teaching her classmates through the "Code Club." With her newfound skills, she aims to use Scratch coding to develop stories and gender games that address gender-related concerns such as early marriages and stereotyping.

With her experience in leading the Code Club, Pritiprangya now plays an active role in the Kaushali Club, acting as a mentor to guide and help other students. Launched in 2023 by the Department of School and Mass Education and Mo School of the Government of Odisha, the Kaushali Club is an initiative aimed at nurturing computational thinking among students. The idea for this club was inspired by the Amazon Future Engineers project which introduced clubs like the

"I am grateful to the STEM club, my STEM Educator and School Coach for creating a safe space for me where I could freely share my interest in exploring computational thinking. They created an opportunity for me not only to learn but also to teach my peers through the Code Club. I feel now I do not have any regret for not studying in private school. I certainly would not have these opportunities there. My parents are happy to see my growth over the last one year."

- Pritiprangya Pradhan,
Class 9 student,
Pratap Sasan Girls High School

Code Club to over 500 schools in Odisha during the 2022-23 academic year. This demonstrated that students in government schools can learn coding and use technology to solve complex problems in their community.

Future Pathways

Pritiprangya aspires to pursue a career as a software engineer, with a focus on developing games that blend entertainment with ethical considerations. Her vision involves creating a game platform that allows individuals to explore the ethical aspects of gender equity. "I want everyone in my school to know how to operate a computer; this is my dream for this school," she mentions.

"I Will Use My Voice for Good" : Rokshita and Her Friends Learn To Chart Their Futures

Rokshita's voice was always loud and commanding. Teachers often saw it as a tool to manage noisy classrooms. However, whenever she asked questions in class, she was met with responses like:

"Don't be so loud!"
"Please be quiet!"

This led to the development of a complex in her. Beyond her powerful voice, will she ever find other ways to harness her strength?

Rangareddy, Telangana

Rokshita and Harika Lead the Way

During a Quest Alliance Boot Camp held at ZPHS Narsingi, our Learning Experience Assistant (LEA) Pravallika noticed Rokshita's ability to effortlessly capture the class' attention with her voice. She also observed Rokshita's eagerness to learn - after each boot camp session, Rokshita would approach her with a checklist, diligently marking off all the topics covered, almost like a daily summary ritual.

One day, Pravallika and her team needed some extra support, so they asked Rokshita and her friend Harika to lead an energizer activity. Together, they came up with a creative energizer inspired by the sequencing concept discussed in the previous day's boot camp session. Linking simple number cues to gestures, they challenged the class to remember the associations. The activity was a hit, helping students grasp the sequencing concept quickly. Rokshita even created a simple mnemonic, 'All go in a rhythm,' to explain algorithms. Impressed by their ingenuity, Pravallika then asked them to lead a session for 15 students who were absent in the previous session, which they did successfully!

"People used to be scared of me because of my loud voice. Either that or Teachers would only ask me to mind the class. But now, after taking a session, I feel like I have a reason to use my voice."

- Rokshita,
Class 6 student, ZPHS Narsingi

"I Want to Be Just Like You"

After their session, Pravallika and Rokshita shared a personal moment. They discussed Rokshita's interests, fears, and dreams, with Rokshita expressing her admiration for Pravallika's work with NGOs. She also shared her desire to become a facilitator, leading sessions similar to the one she and Harika just conducted. Pravallika offered her support and encouraged both of them to continue empowering themselves and their peers.
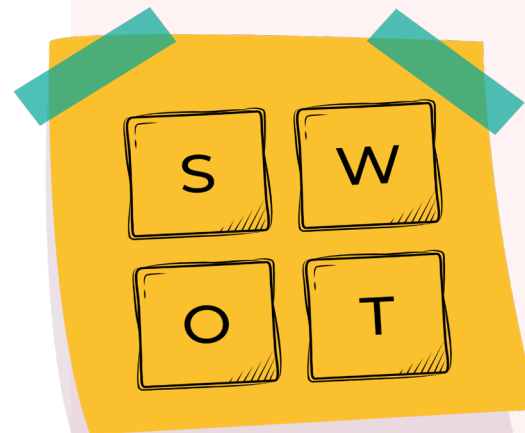
Our Future Vision

In the next 3 years, with Amazon's support, Quest Alliance aims to broaden Computer Science access for government school students. This will be done by --

Improving the Chatbot:

The chatbot is currently being tested in 2 states, engaging 15,000+ students with a 15% monthly engagement rate. We are working on enhancing the chatbot experience using Large Language Model integration to provide a more personalized and contextual learning experience for students. AI will be used to further deepen comprehension through self-led assessments integrated into the chatbot.

You can scan the QR code to explore the chatbot:

Increasing Volunteer Engagement:

Through our Hyperlocal and AFE projects, we plan to deepen volunteer engagement via class chats and bootcamps.

Expanding to Andhra Pradesh:

In collaboration with Leadership for Equity and Amazon, Quest Alliance has signed a 3-year partnership with the Andhra Pradesh government, impacting 10,000+ students.

Our Partners