Portfolio Reflection: Using Mobile Tech and AI to Transform School Meals in Pakistan

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This research project started out of one question: what if technology could educate children by first nourishing them? School hunger is a significant obstacle to education in Pakistan, particularly for girls in low income areas. Whenever I look at them on the streets asking for money or whenever I ask my house help what did you want to be when you grew up their answer would always leave younger me sad and wondering why me and not them? Why do they have to live wondering if they can afford their next meal and why are they unable to get educated and fulfill their dreams all of which by the way are a basic human need. When I volunteered at one of Allah Walay Trust's Iftar Dastarkhwans I cried on the way back home because the conditions those people were in, snatching food and storing it in their clothes which were mostly ripped and covered in dirt left me so speechless and numb. Especially in Pakistan since the poverty levels are so high and power imbalance so much, these cases are everywhere. This topic is genuinely something I could talk about for hours but I'll just leave it at that for now.

So aligning that with my passion for CS and AI, I decided to write this paper. I needed to learn about how mobile technologies and artificial intelligence might address this at scale.

During the course of this paper, I researched how SMS tracking, QR codes, and AI demand forecasting might aid school feeding systems. I learned about backend tools such as Python Flask, Firebase, and Twilio's SMS API, and created a basic flow model with my own knowledge of how scalable technology can benefit offline regions. I also created a system diagram so that I could see how meal prep, delivery, and parent alerts might be tracked effectively.

This project taught me that computer science isn't just about fixing technical issues it's about designing things that benefit people. As someone with more access to knowledge and resources in a land where people can't even afford phones or a wifi box and are unable to pay for basic human necessities, I really want to make my contributions and raise awareness. Although I am young and currently don't have funds to properly support these people and personally help them, I do want to make some sort of a difference and hope to grow up to be someone who can change at least a couple of lives and benefit people with my existence. Pairing that with my passion for CS and my familiarity with AWT, I decided to write the paper on this topic. I really want to study AI and bring innovative ideas and have a favorable impact to my community and solve problems such as hunger, inequality, and education access.