

Building Mobile Apps for Social Good

A Step-by-Step Guide

Amita and Ankit were curious ninth graders who enjoyed problem-solving. Making the world a better place was their common goal. They decided to leverage their love of technology to create something valuable one day while brainstorming in their playground under the shade of an old banyan tree.



"What if we could build an app that helps people?" Amita recommended.

"Like what?" inquired Ankit, curious.

"Maybe something that helps clean up our city or connects people in need with volunteers," Amita enthusiastically responded.

Their conversation was overheard by Ms. Patel, their instructor. "Why not make a project out of this idea? "I can help you develop a mobile application," she added.

Ankit and Amita exchanged excited glances. This was their chance to make a difference!

Step 1: Identifying the Problem

Ms. Patel asked, "Before we dive into building an app, let's identify the problem you want to solve. What's bothering you in your community?"

The two thought for a moment. Ankit said, "The garbage in the streets is a big issue." Amita added, "And sometimes people don't know where to find volunteers for cleaning or planting trees."

"Great!" Ms. Patel exclaimed. "Let's create an app that helps people report garbage and find volunteers to clean it up."

Step 2: Designing the Idea

The next step was to sketch the app. Ms. Patel gave them chart paper, pencil and markers. "Draw what you think the app should look like," she said.

Amita drew the home screen: a button to report garbage and another to volunteer. Ankit designed the map page, where users could see nearby locations that needed cleaning.

"Designing is fun!" Amita said.

"Yeah, it feels like we're solving a puzzle," Ankit replied.

Step 3: Learning the Tools

Ms. Patel introduced them to **MIT App Inventor**, a simple tool for creating apps.

"You don't need to be a coding expert to start. Let's build the basic structure of your app," she explained.

Over the next few days, Amita and Ankit learned how to add buttons, create text boxes, and connect features like maps. They giggled when the app displayed funny errors.

"Debugging is like solving mysteries," Ankit said, feeling like a detective.

Step 4: Building the App

Now, it was time to bring their idea to life. They named their app **CleanUP Buddy**.

Ms. Patel helped them create two main features:

1. **Report Garbage:** Users could take a photo, add a location, and describe the issue.
2. **Find Volunteers:** A list of local volunteers and cleanup events appeared on a map.

Amita added bright colors and a cheerful logo to the app, while Ankit focused on making the map feature work smoothly.

Setting Up the Basic Layout

The first task was to create the app's **basic layout**. This includes deciding what the main screens of your app will look like and how users will interact with it.

For **CleanUP Buddy**, Amita and Ankit needed two main screens:

1. **Home Screen**: A simple page where users can report garbage or find volunteers.
2. **Map Screen**: A map showing the locations of garbage spots and volunteer opportunities.

In MIT App Inventor, they used the **Designer** feature to drag and drop elements like buttons, images, and text boxes onto the screen. For the **Home Screen**, they placed:

- A **Button** labeled “Report Garbage”
- A **Button** labeled “Find Volunteers”
- A **Label** for a short introduction or description

For the **Map Screen**, they added:

- A **Map** component, where locations could be marked
- A **ListViewer** to display a list of nearby cleanup events or volunteers

Adding Functionality with Blocks

Now that the layout was ready, it was time to make the app **interactive**. MIT App Inventor uses **blocks** (a visual way of programming) to add functionality to the app.

Here’s how they added functionality:

- **Report Garbage Button**:
When users clicked the "Report Garbage" button, the app needed to open a page where users could upload a photo of the garbage, add a description, and pinpoint the location. This required:
 - Using the **Camera** component to take photos
 - Using the **LocationSensor** to detect the user’s location
 - Storing the report in a database (they could use **Google Sheets** or a **Firestore** database to save the reports)
- **Find Volunteers Button**:
When users clicked the "Find Volunteers" button, the app had to display a map with the locations of volunteers and ongoing cleanup events. They used:
 - **Google Maps API** to show a map
 - **Firestore** to store and retrieve volunteer locations
 - A **ListViewer** to show a list of volunteers and events nearby

Step 5: Testing and Feedback

When the app was ready, they shared it with their classmates. Everyone tested it and gave feedback. Some students suggested adding a rewards system for volunteers. Ankit excitedly added a feature where users earned badges for their efforts.

Step 6: Launching the App



On Environment Day, the school organized a special event to launch **CleanUP Buddy**. Students, teachers, and even the city mayor attended. Ankit and Amita presented their app confidently.

"This app is for everyone," Ankit said.

"And it's proof that even small ideas can make a big difference," Amita added.

The crowd cheered as the app went live.

Epilogue: Making a Difference

In the weeks that followed, the app gained popularity in their town. Streets became cleaner, volunteers connected through the app, and Amita and Ankit felt proud of their creation.

"This is just the beginning," Amita said one evening.

"Let's build more apps for other problems," Ankit replied, smiling.

As they walked home under the stars, they realized that with creativity and determination, they could truly make the world a better place—one app at a time.