# A Mobile User Interface for the Blossom Robot

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## Introduction

Completing tasks is an extremely important but arduous thing we do in our everyday lives. These tasks can range from studying, all the way up to signing off on paperwork needed to start a company’s next big venture. While we all find that our body has some resistance to completing tasks, people with ADHD can feel that resistance on an even greater level due to executive dysfunction. Body doubling is a strategy used by people with ADHD that involves having another person present while completing difficult tasks. O’Connell, et al found that Blossom robots can function as a body double when another human is not available. In their study with 11 college students, they found that students enjoyed using the Blossom as an in-dorm study companion, but found the 7-inch touch screen user interface too large and cumbersome for small workspaces. We plan to simplify the UI.

## Objective

In this project, I aimed to develop a mobile application that users can use to operate their study companion robot.

## System Design

The app was built using the Ionic development framework. I chose this framework because it allows for the creation of both Android and iOS apps with minimal code duplication. I currently use the basic UI and timer.

The Flask framework was used to create the server that connects the wireless app to the actual Blossom robot. The flask server runs on a Raspberry Pi connected to the Blossom. With this server-client architecture, the app can wirelessly issue commands to “talk” to the Blossom robot.

Most of the file management was done using the command prompt, so I had to learn quite a bit of new commands in order to get this program running.

The results of all of this is an app that can easily be used to connect a mobile device to a Blossom study companion robot.

- **Start Timer** - Begins the study session: Blossom begins moving and the timer starts counting down from 25 minutes.
- **Pause Timer** - Pauses the study session, temporarily deactivating the Blossom.
- **Preview Video** - Displays input from Blossom’s onboard camera.
- **End Session** - Resets the timer to 25 minutes and stops the Blossom.

Blossom is a study companion robot designed to help students with ADHD.

## Project Outcomes

The main outcome of the project was the creation of the Blossom user interface app. The app is multi-platform, so it’s supported on both Android and iOS. Now, Blossom can be controlled using the wireless app. Blossom now also has server compatibility, making it easier to make the existing desktop user interface support wireless control.

## Why is this important?

Blossom was designed to be a low-cost robot for all ages and technical background. As such, it should be as accessible as possible. The current implementation of having to install and run programs and plug the Blossom into a PC can make this less accessible for non-tech-savvy users. An easily accessible app can help fix this problem and make it more user-friendly.

## Citations


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