

Bed Shaker App

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Developers

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Summary

The Bed Shaker App is an Android application created for the hard of hearing community. Since the start, we set out to create an app that could be paired with a Shelly Smart Switch to receive a text message and trigger a bed shaker that is used as an alarm clock. We developed the app using Android Studio and Java.

Shelly Plus Plug US and Wifi Connectivity

The bed shaker device is paired with a Shelly Plus Plug US which allowed us to toggle the power to the device. This was made possible with the Shelly Plus Plug US API which allowed our app to communicate with the device and configure the network settings.

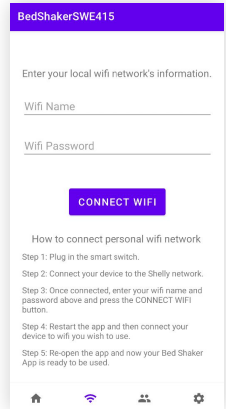
One issue we overcame, was that a user needed to be connected to the Shelly switch network to communicate with it. However, if a user is connected to the Shelly network they cannot be connected to their home wifi network. By using the API, we were able to configure the plug to run on the user's wifi network. The app user sets this up through the app.



Shelly Plus Plug US.



Bed shaker device and plug adapter.

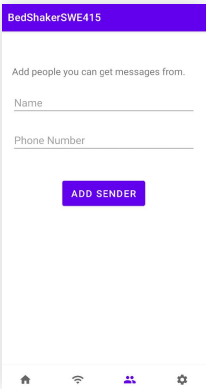


App wifi connection page.

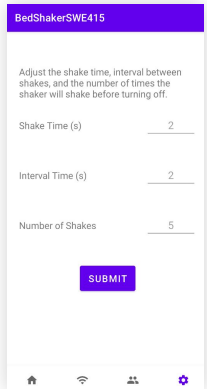
Contact List and Alarm Intervals

In addition to the wifi page, a contacts and settings pages were created. The contacts page allows the user to add contacts from whom they can receive a message to turn on the bed shaker. The user can enter the contact's name paired with their phone number.

The settings page allows the user to set an alarm interval. This gave the user control over how many times the bed shaker shakes, the time between each shake, and how many times the shaker will shake before turning off. These settings are permanent until edited by the user.



Contacts page.



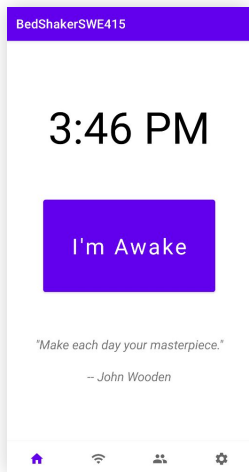
Settings page.

Sending and Receiving Text Messages

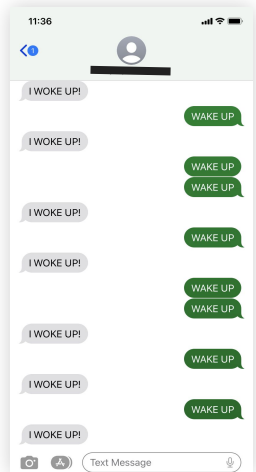
The main purpose of this project was to make our bed shaker turn on when receiving an incoming SMS message. This SMS message must contain the text "WAKE UP" to be acknowledged by the app. The sender does not need this app, they can use any app which allows them to send SMS messages.

In addition to receiving messages, the app user can also send a message back to the sender to notify them that they woke up. To do this the user just needs to click the "I'm Awake" button. This button will send a message back with the text "I WOKE UP" and will turn off the shaker if it has not already turned off. If multiple contacts send a message to the app, the most recent sender will receive the "I WOKE UP" message.

The app can also receive messages when outside the app, when the app is force stopped, and after boot of the phone. To create the daemon we used an Android Service and Broadcast Receiver to handle our incoming text messages.



App Home page.



Sending "WAKE UP" text.