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The mobile application we are building now is the Smart-Home application; it will connect sensors and interactive functional devices of a home with an app and a database. This application will give the user control and overview of their home, various sensors and devices are planned such as ones for the temperature, camera, lighting, door and ventilation/ac of the house. These will in turn feedback data to the user through a database, in effect the user will have full control and overview of these sensors and devices and in turn control of their home.

Features of our project:

·         Control up to four home appliances wirelessly (expandable based on free IO pins)

·         As the android application is password protected, it automatically adds security to your home as it can be controlled by the user only

·         Databases will be store on [Firebase](https://console.firebase.google.com/)

Potentially, the project will include the following attributes and design as for the application side of the project in the following sequence from startup:

A login screen which will feature a logo of a house & security related symbol and our team name

Log in screen will employ the typical login and password functionality tied to the database

A menu which will contain the following tabs

* Temperature – showing the temperature of the location of the sensor
* Lighting – control and observe the status of lighting
* Camera – showing the video side of the house, optimally control to move the camera
* Door – status and history of the door and optimally control (locked or unlocked)
* Added solar panel monitoring - If the house has a solar panel installed, then homeowners will be able to monitor their solar panel through the mobile application.
* Help/About – will be a link to a website describing user functionality and contact info

The design will be as simple as possible for the user. We use menu buttons, text views and various other android studio functionalities. The UI should provide audible and visual alerts and notifications to the user to any changes in the system of the house which will persist until the user sees them as a measure of security and consistency.

When a user registers for a new account in the app, the user information will be stored and sync in the cloud immediately. The users then can access their information through any devices, web or mobiles. Each user has different data in their database and also, they have different types of access.

The Smart-Home mobile app is made using Android Studio. We used Java as programming language on developing the app as well as used Object Oriented Programming techniques. We then incorporate the application with a real-time database, Firebase where the data, user information, and variable values are stored. The mobile app will be updated to be able to have solar panel monitoring display in the following weeks. The application is functioning properly and we hope to incorporate the hardware/sensors in the following weeks as well.