

Class Diagram

Our class diagram has 3 main components, the mobile app, the hardware which incorporates the arduino, lights, camera, alarm and gyroscope, and Firebase. All three main components are connected to each other and are in constant communication. The main set of classes is contained in the mobile app. The mobile app is built using Android Studio and the code is written in Java. Our design requires that each new page in the app have its own class to control any events or actions on the page. Every double arrow line in the diagram describes a possible transition from one page to another. Each white background box represents a controller class in the UML diagram. These are the classes that each control one page in the app. The blue shaded boxes represent the UI (User Interface) code in the app. The UI code is done in xml. Each UI related file is shown connected to its controller class. The red shaded boxes represents objects we will create. The Photo object will allow us to easily utilize and display the photos taken from the Firebase and the User object will enable us to store the specific user's privileges to allow us to check whether or not a specific user action is allowed. These objects will also help us pass data back and forth between the classes without having to pull data from the firebase everytime. Our app will connect to the hardware through socket programming techniques. For each action we want to perform that involves the hardware the mobile app opens a socket to connect to the hardware, sends a signal, and then immediately closes the socket. This allows the hardware connection to remain open and listen for signals from different devices.