SOLAIRE

TEAM EE

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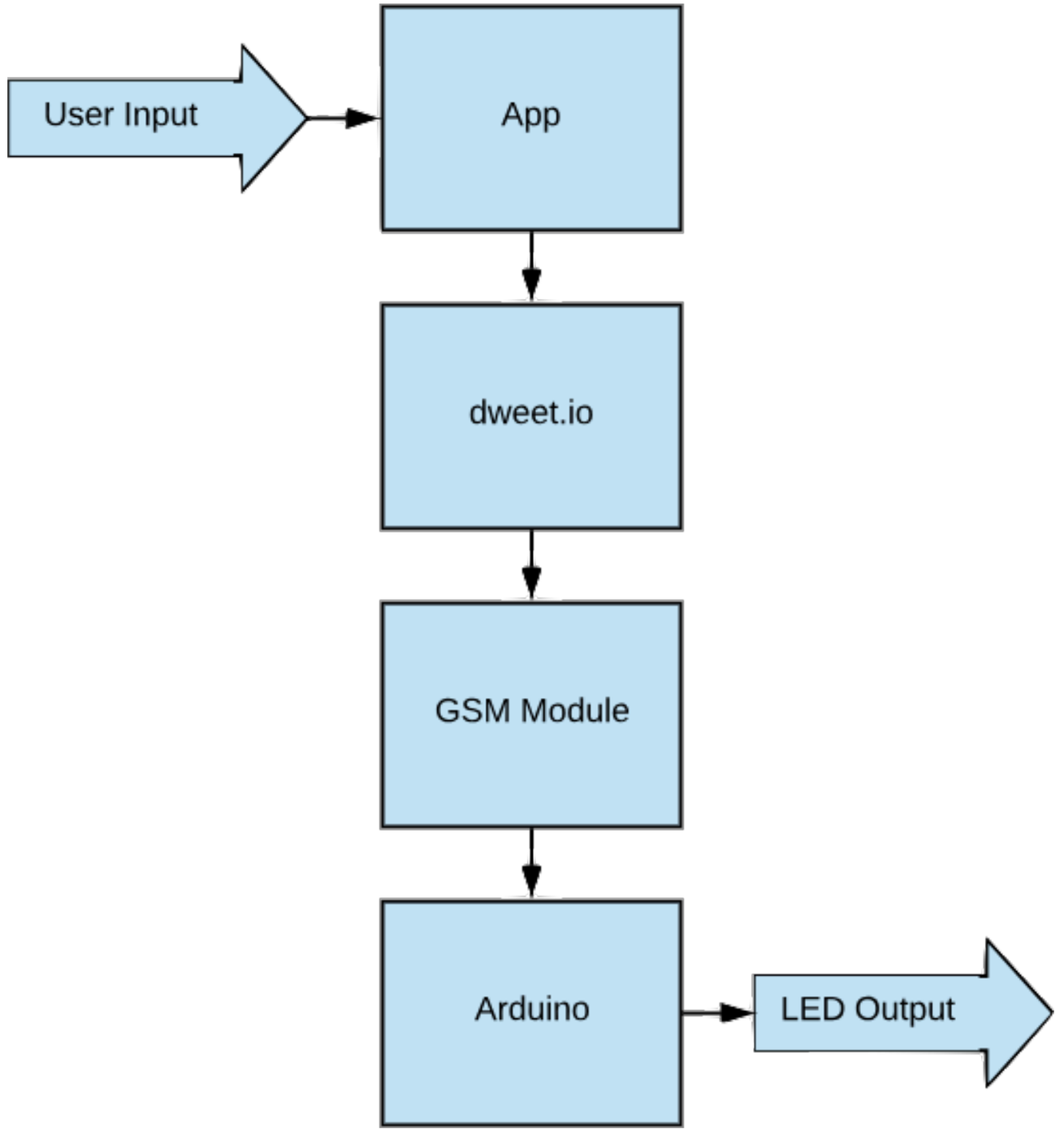
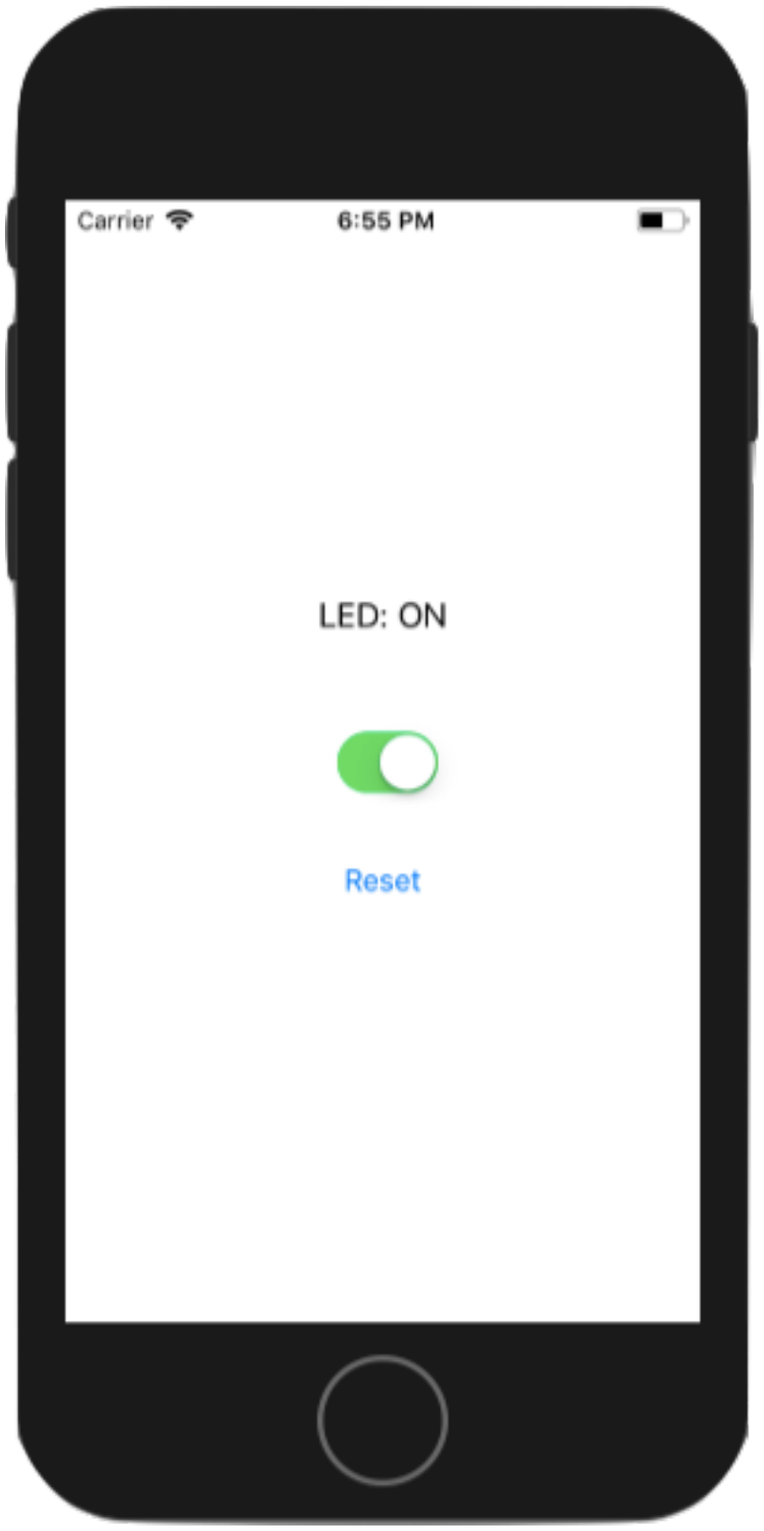
OVERVIEW

- Solaire is an iOS based app that communicates with a GSM cellular module in conjunction with an Arduino that allows users to control an onboard LED
- Our goal for this project was to implement wireless technology to our circuits in place of manual switches and buttons with a simple app to control it



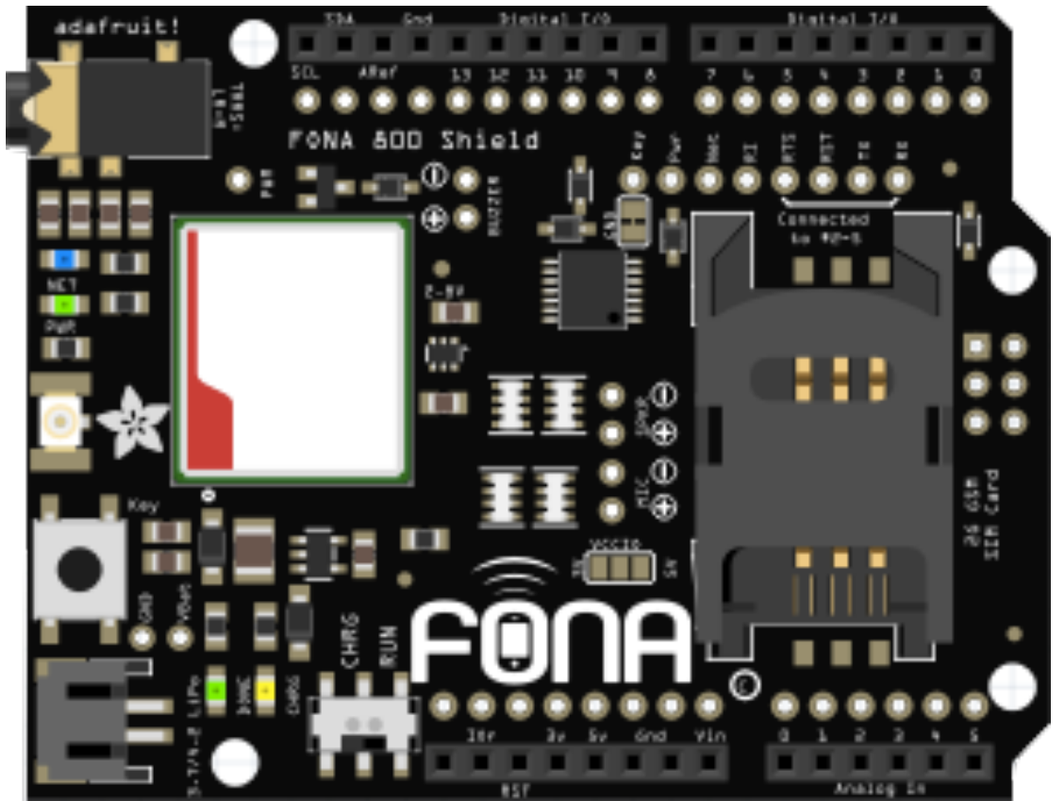
PHASE 1: THE APP

- Tools: Xcode, Swift, dweet.io
- UI: A switch and reset button that would allow users to send on, off, and reset requests to the GSM module
- Implementation: The app communicates with dweet.io by utilizing its web based RESTful API. User input on the switches and buttons are linked to codes that carry out the respective GET requests which are then sent as a JSON response to be received by the GSM module



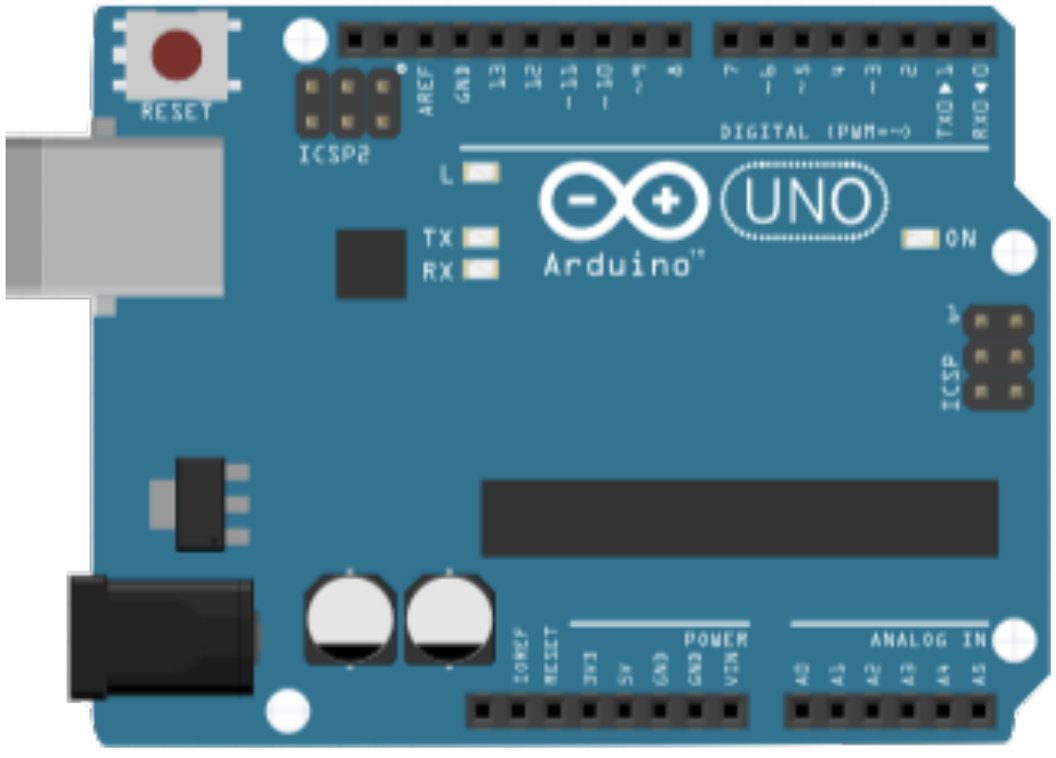
PHASE 2: THE GSM MODULE

- Tools: Adafruit FONA 800, Arduino IDE
- Assembly: The Adafruit Fona 800 GSM Module is fitted with an antennae and SIM card to carry out cellular communications. Pin outs are connected to the Arduino to relay incoming information from dweet.io to be read in the Arduino IDE
- Implementation: The Adafruit library was used to configure the backend connection of the GSM module while the incoming JSON response from dweet.io was to be read and recorded in the Arduino IDE's serial monitor

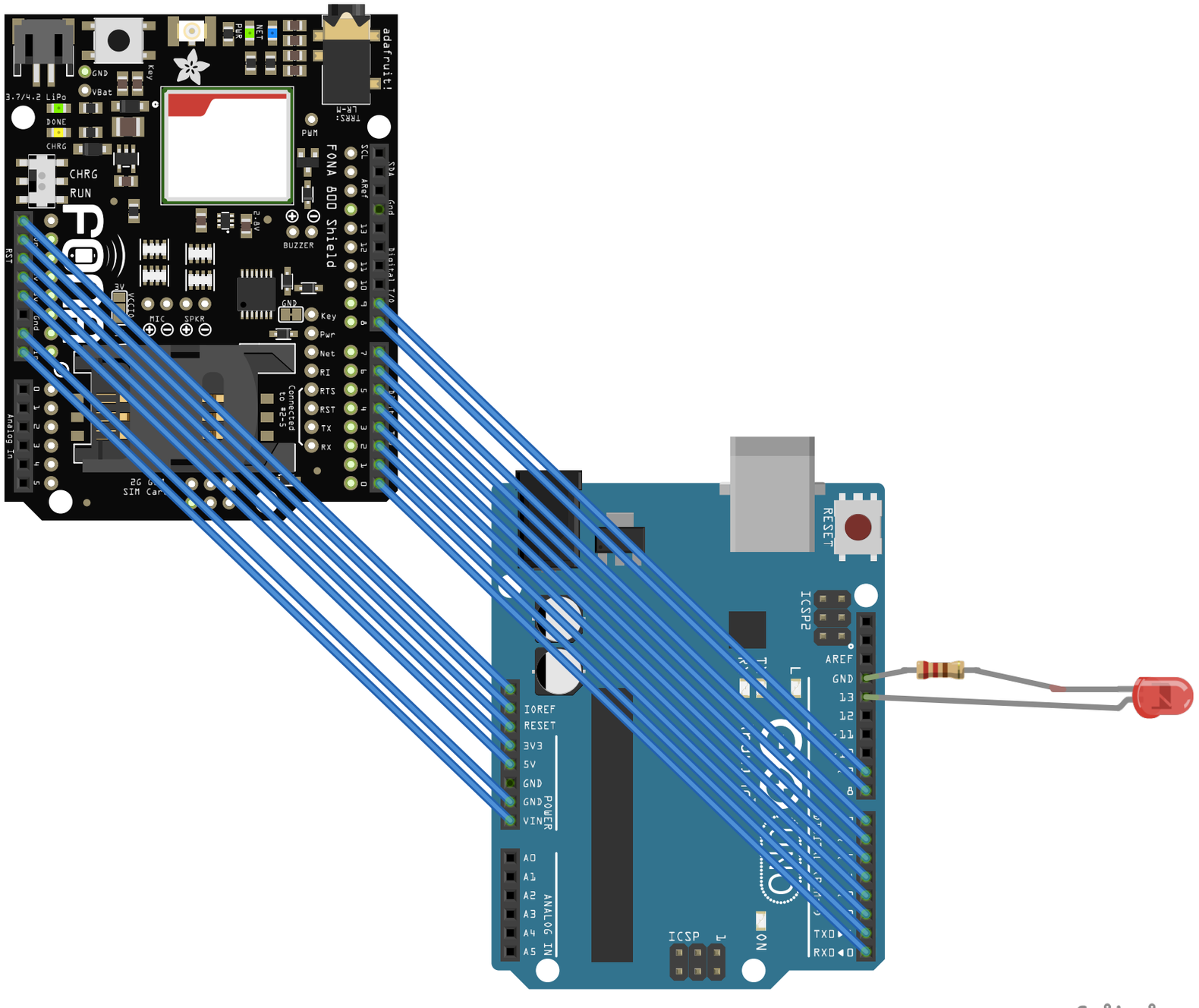


PHASE 3: THE ARDUINO

- Tools: Arduino IDE, Arduino UNO, LED
- Assembly: The Arduino Uno connects the information incoming from the GSM module to the micro-controller that carries out the on/off switching of the LED. The LED itself is placed in series with a resistor to a desired port on the micro-controller
- Implementation: Information relayed from the GSM module comes in the form of a JSON response which is parsed as a string in the serial monitor. If/else statements are put in place to detect the correct substring and the respective functionality that needs to be carried out is reflected in the state of the LED



GSM MODULE TO ARDUINO CONNECTION



FUTURE APPLICATIONS AND IMPROVEMENTS

- The project is a proof of concept that could be expanded to accommodate more device elements and relay information back and forth
- The app could be improved upon by allowing the user to tune device elements (ex. brightness)
- The UI itself can update when new devices are placed into the circuit, displaying information such as installed port

END

THANK YOU