**METHODOLOGY**

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**Figure 1.** Block Diagram of the Weather Monitoring System

Figure 1 shows a general block diagram of the system. Three parameters will be measured by three sensors: Humidity through DHT11, temperature through DS18B20, and the air pressure through BMP280. All the data will be sent to an Arduino UNO that sends the data to an ESP32 module through an RF433 Transmitter-Receiver set. Finally, the ESP32 will then be communicated to the Blynk IoT app that will then display the measured parameters over time. The app has graphing features that can display the change of the measured values over time.

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**Figure 2.** [From left to right] DHT11, DS18B20, BMP280

The chosen sensors are based on their economical costs in relation to their performance. All the components chosen are the most inexpensive in the market, but still contain acceptable accuracies. DHT11 is a humidity sensor whose accuracy is within 5% at maximum. The BMP280 barometric air pressure sensor has an accuracy within 0.12 hectopascal, which translates to 1 millibar on a 5.5 microsecond measurement time. This means that it has relatively high accuracy while also at a relatively fast measurement time. Finally, the DS18B20 on paper has an error of only 0.5 degrees Celsius.