

PebbleDream User Manual

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This smartwatch application “PebbleDream” contains three main components: the sensor **Arduino**, the middleware **Server** and the smart **Pebble Watch**. Below is the introduction of each component.

1. Pebble Watch

UI on Pebble watch is designed to be extremely user-friendly. There is a main menu where users can easily select what feature to use. It should be fairly straight-forward.

Basically, there are four parts of features:

1. Temperature Query (Including Temperature History)
2. °C / °F Converting
3. Arduino Control
4. Additional Features: Philly weather report + Yahoo! stock query

On the top of the screen, there is a graphical layer to display Pebble Watch status, as well as the result of each query. What makes our app fancy is we have a line chart displaying on screen where user can easily know the temperature history over the last minute.

2. Server

Server plays the role of middleware. Pebble Watch won't be able to directly talk with Arduino.

To use the server, use CLI(Command Line Interface) and type in make to compile the server.cpp. Then type in ./server [port_number] to start the server. Of course, you should have Arduino connected properly beforehand.

3. Arduino

Arduino is the sensor of temperature and a display terminal. To make it work, compile arduino.ino into Arduino and put it where you want to monitor the temperature. Then you can see the temperature displayed on the seven-segment display.

The steps to compile arduino.ino:

1. open Arduino.exe and open arduino.ino;
2. Attach the Arduino board to the computer via the USB cable;
3. Click the “Verify” button on the top left and then click the “Upload” button.

The fundamental function of the seven-segment display is to show the temperature in either Celsius (the temperature displayed with a ending char 'c' behind) or Fahrenheit (the temperature displayed with a ending char 'F' behind). Also the light on Arduino indicate whether the temperature is proper or not. If the temperature is below 23 °C, the blue light indicating COLD will be on. If the temperature is higher than 26 °C, the red light indicating HOT will be on. Otherwise, if the temperature is within this scope, the green light indicating MILD will be on.

The two additional functions of the display is to tell the user the price of the stock or the forecast of the local temperature. The price of the stock will be shown with a preceding “STOC”, the red light will be on if the price is decreasing and the green light will be on if the price is increasing. The local temperature will be shown with a preceding “OUT”, which means it's the forecast of outside weather. Considering the message to be shown may exceed four digits, it will be shown in a rolling way.