

- 1) The HAT will be used as a low power temperature sensor which can be used to log temperatures and give alerts when the temperature exceeds or goes below configurable threshold temperatures.

The attachments will be a digital temperature sensor, a potentiometer and basic I/O (LEDs and pushbuttons). The HAT will also include additional breakout pins which users can connect additional output devices to (for temperature alerts), and which will allow connection to a device that logs temperatures.

The device could be used in a variety of situations, including personal weather logging, home agriculture, machinery/manufacturing temperature monitoring, student research, and office monitoring.

The potentiometer will be used for configuration of the device, such as to set threshold temperatures and change sensor frequency.

2)

User/Use case	User Description
Personal weather monitoring	Someone who wants to keep track of the temperature in their own home over time, or who want to be alerted when certain temperatures are reached
<b>Requirements</b>	<b>More detail</b>
Configurable "alert" temperature	Ability to change the temperature level/s at which the board will send an "alert" signal
Basic output for configuration	LEDs on the board that allow visual feedback for the u
Breakout pins for additional "alert" output	User might want to connect an additional/different output for temperature alerts, e.g. a buzzer or a switch for an alarm

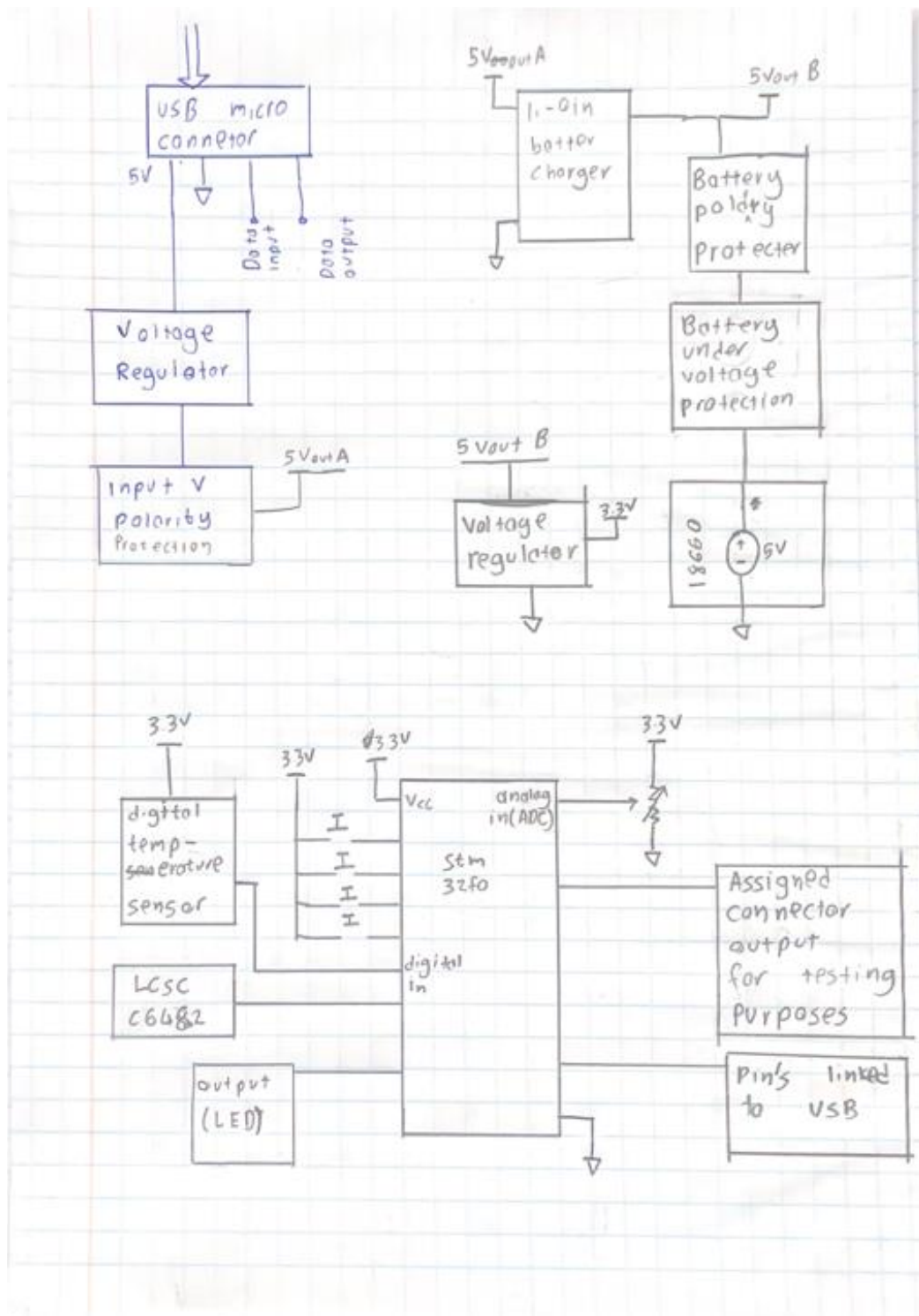
User/Use case	User Description
Agriculture	Monitoring of a home greenhouse or houseplants
<b>Requirements</b>	<b>More detail</b>
Ability to mount a case	Requires mounting holes so that user can add a protective case, e.g. to protect from moisture in a greenhouse
Temperature logging	Requires an output that users can connect to a storage device to log temperature over time

User/Use case	User Description
Machinery/Manufacturing	Monitoring of a workspace containing temperature sensitive machinery
<b>Requirements</b>	<b>More detail</b>
Breakout pins for additional "alert" output	Users may want to configure the board to automatically take some action upon temperature "alert", e.g., turn on additional room cooling
Temperature logging	Same as above
Highly configurable "alert" levels	Machinery may need to take actions at many different temperature levels, e.g., turn fans up or down

User/Use case	User Description
Research	E.g., a student doing a project tracking temperatures in a remote location
<b>Requirements</b>	<b>More detail</b>
Temperature logging	Same as above
Power efficient	Researchers may need to leave the device running for a long time without charging/manual intervention
Breakout pins for additional "alert" output	Same as above

User/Use case	User Description
Office monitoring	E.g., to track temperature alongside separate tracking of energy usage from fans/airconditioning
<b>Requirements</b>	<b>More detail</b>
Temperature logging	Same as above

3)



- 4) <https://github.com/Carciax/EEE3088F-Project-CKR>