Project name:
ICE CHAIN

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TEMPERATURE DATA LOGGER DEVICE (TDL)
TASK PAPER

TDL consists of:

1. Prefabricated plastic (or caprolon A-type) case (70x60x13 mm) with the holes for the device enable button and micro USB connector for charging the battery (isolated from the crystal logic)
2. Two-layer electrical board on fiberglass with microchip Atmega328
3. Bluetooth module HC-05
4. Solid-state temperature sensor (temperature range from -20 ºC to 20 ºC)
5. Battery (>1000 mAh)

TDL usage workflow:

- Hold the enable button for 3 seconds to turn on TDL
- The sensor will begin to collect the temperature data
- At any time you can request the data received by TDL, using Ice Chain app, and register the meeting of temperature conditions by Ice Chain Smart Contract
- Hold the enable button for 3 seconds to turn off TDL

TDL software workflow:

- When TDL is turned on, an empty data array is created
- When temperature data is read, it goes into the array
- When TDL transmits the array of data, TDL puts a digital signature on the array and passes it via the bluetooth module to Ice Chain app
- TDL reads temperature data per unit time settled by user
- After obtaining new temperature data, the data array becomes decoded and the new data goes into the array. It becomes encoded again (this procedure is needed to protect the data at each iteration)

The full 3D scheme of TDL is in developing.