Preemie Baby Warmer: Goals

Easily replicatable documented open-source design to include:
- Sewing Pattern and Instructions
- Circuit Design/Bill Of Materials
- Arduino Code
- Predictable Power Management Performance
- Improved Robustness

Preemie Baby Warmer: Accomplishments

- Created open-source sewing pattern for swaddle and constructed usable prototype from cheaply available materials
- Added High-temp and Low-temp alarms with audible buzzer
- Proved we can raise temperature of gel-pak 10 degrees C in 37 minutes with two non-alkaline 6V lantern batteries
- Started open-source PCB design with Fritzing to allow and easy and cheap replication
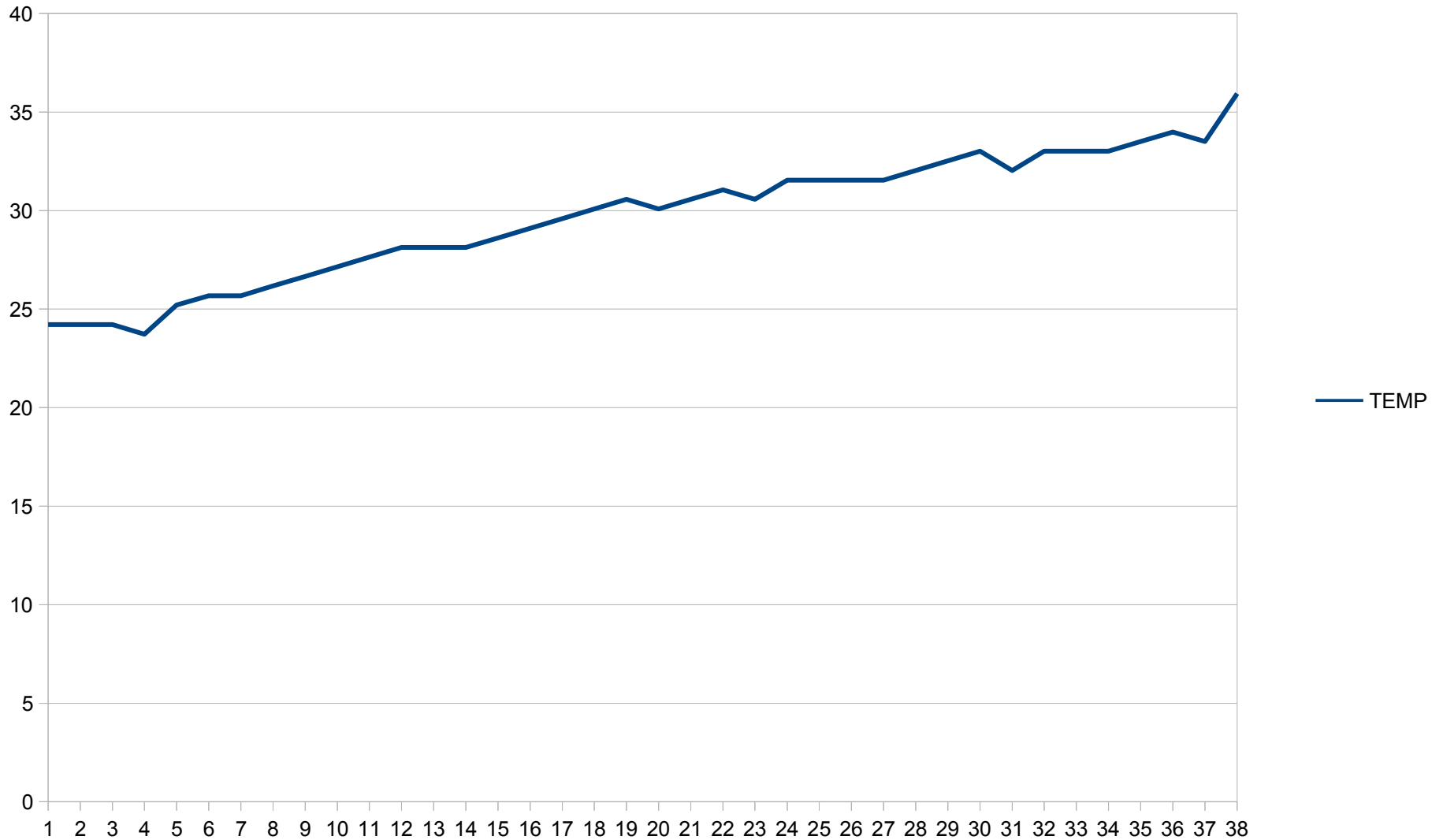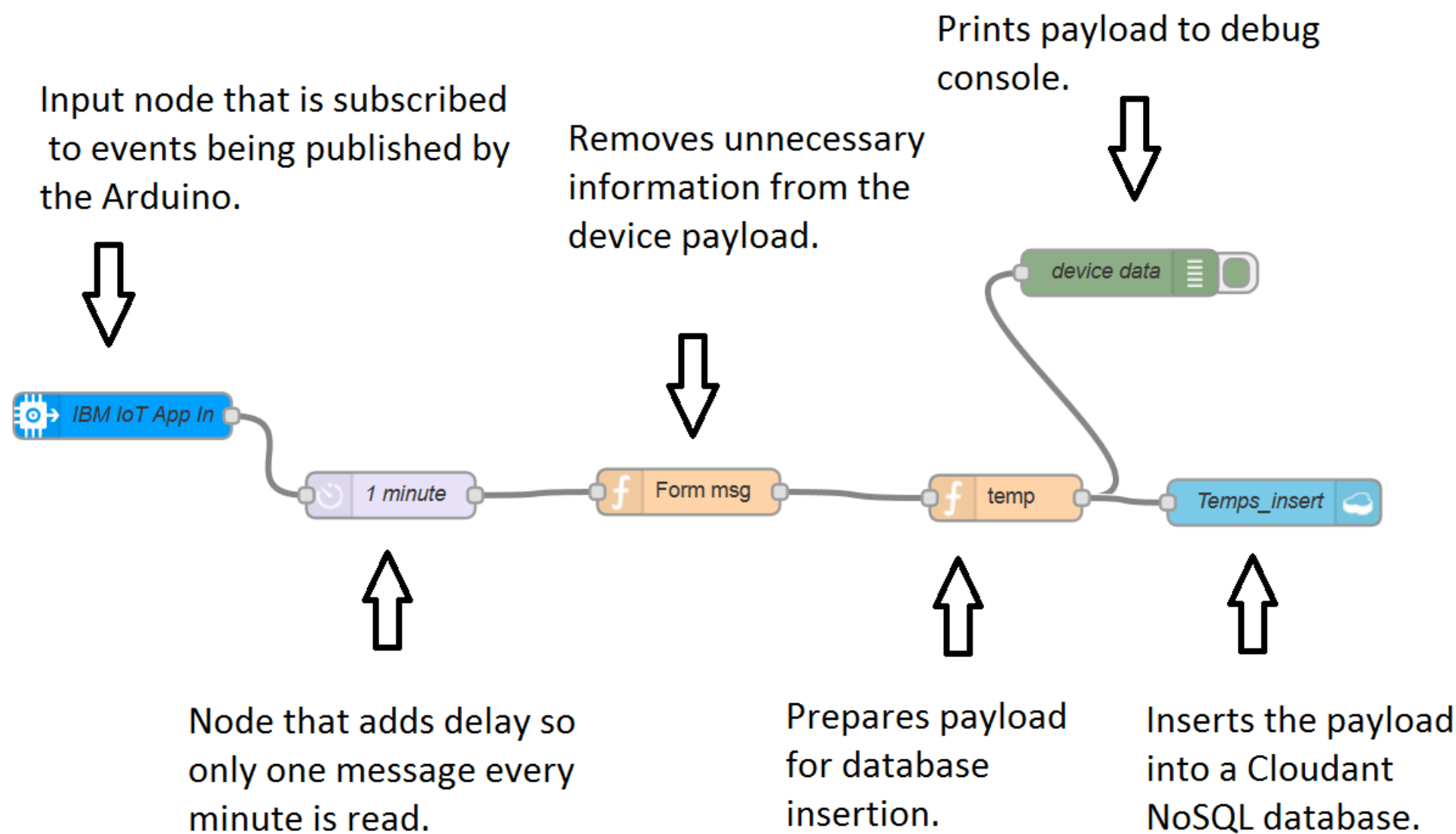
Preemie Baby Warmer: Goals

- Sewing Pattern and Instructions – YES!
- Circuit Design/Bill Of Materials – UNDERWAY!
- Arduino Code – YES!
- Predictable Power Management Performance – PARTIAL!
- Improved Robustness – SLIGHT!

Failures....

- Doll is cute but a poor model for human flesh

Success: 25 C to 34C in 37 Minutes

Input node that is subscribed to events being published by the Arduino.

Removes unnecessary information from the device payload.

Prints payload to debug console.

device data

IBM IoT App In

1 minute

Form msg

temp

Temps_insert

Node that adds delay so only one message every minute is read.

Prepares payload for database insertion.

Inserts the payload into a Cloudant NoSQL database.

TODO:

- Produce start-to-finish Instructable or Video of the this version

- Learn watts needed to maintain steady state and relate to battery type and lifetime

- Improve temperature sensing

- Talk to neonatologists with real experience in the field