# Weatherbot

## Microsoft Research

Microsoft Corp.
www.microsoft.com

System Description - Field module for distributed system of sensing various environment properties and reporting values to base station

Features:
- Record & store sensor reports
- Battery powered
- Energy harvesting support (Solar)
- Optimized for power & service life
- Connect to a PC (Ctrl/Disp)

Sensors:
- Temperature
- Humidity
- Light Level
- Barometric Pressure

Interfaces:
- LoRa
- BLE/WiFi (Option)
- Cellular (Option)
- USB
- Ethernet (Option)

| | | |
|---|---|---|
| Title *Weatherbot* | | *BrickRed Systems*<br>*2509 152nd Ave NE*<br>*Suite B*<br>*Redmond, WA 98052* |
| IoT weather-bot based on LoRaWAN technology | Revision: 1 | |
| Date: 5/8/2020 Time: 12:14:34 PM | Sheet 1 of 6 | |
| File: Title Page.SchDoc | | |

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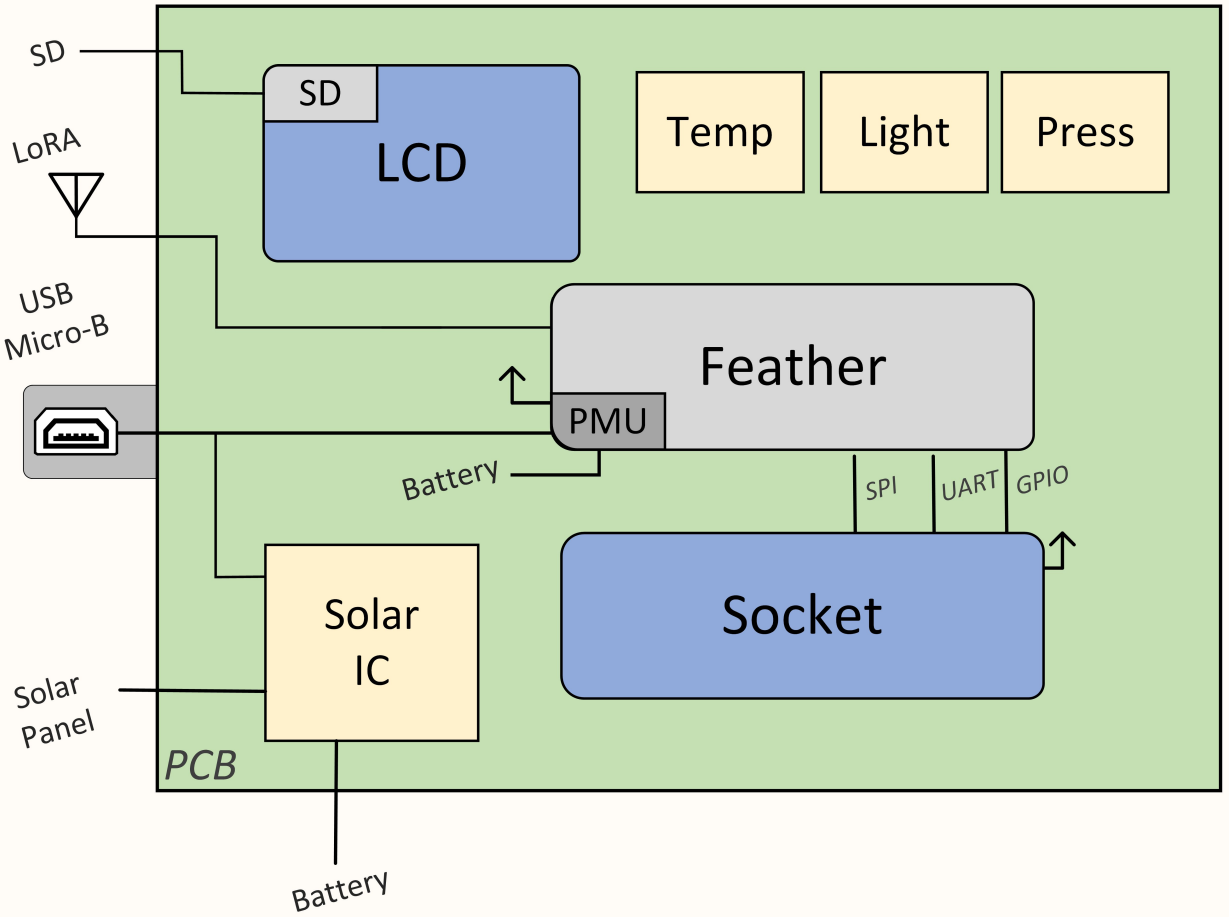
## System Description

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| Title | ***Weatherbot*** | *BrickRed Systems*<br>*2509 152nd Ave NE*<br>*Suite B*<br>*Redmond, WA 98052* |
| Schematic table of contents | Revision: 1 | |
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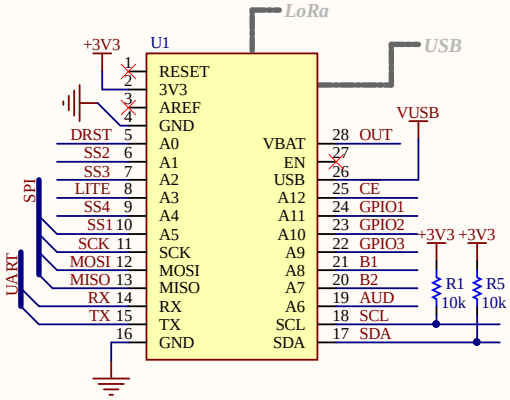
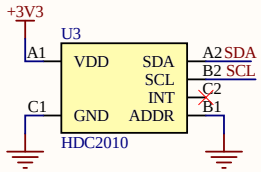
| File: Table of Contents.SchDoc | | |

# Control

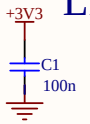
## LoRa Feather

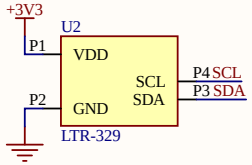



## Temp/Humid

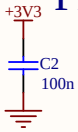



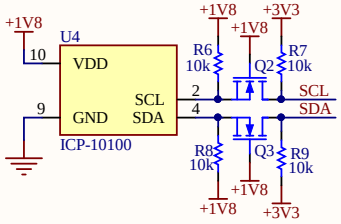

## Light




## Pressure

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| <descrip> | Revision: 1 | |
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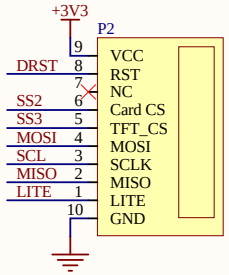
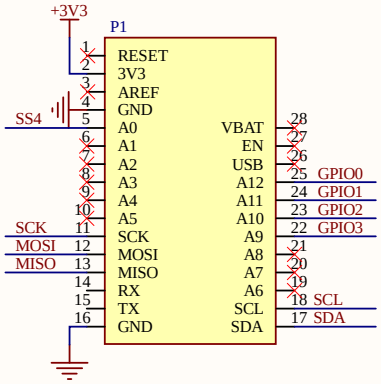
# Interface

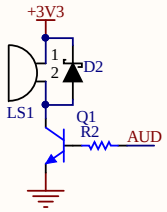
## Disp - 1.8" LCD, SD



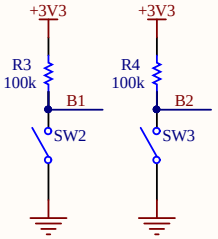

## Socket




## Audio




## Buttons

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| User & remote interface IO | Revision: 1 | |
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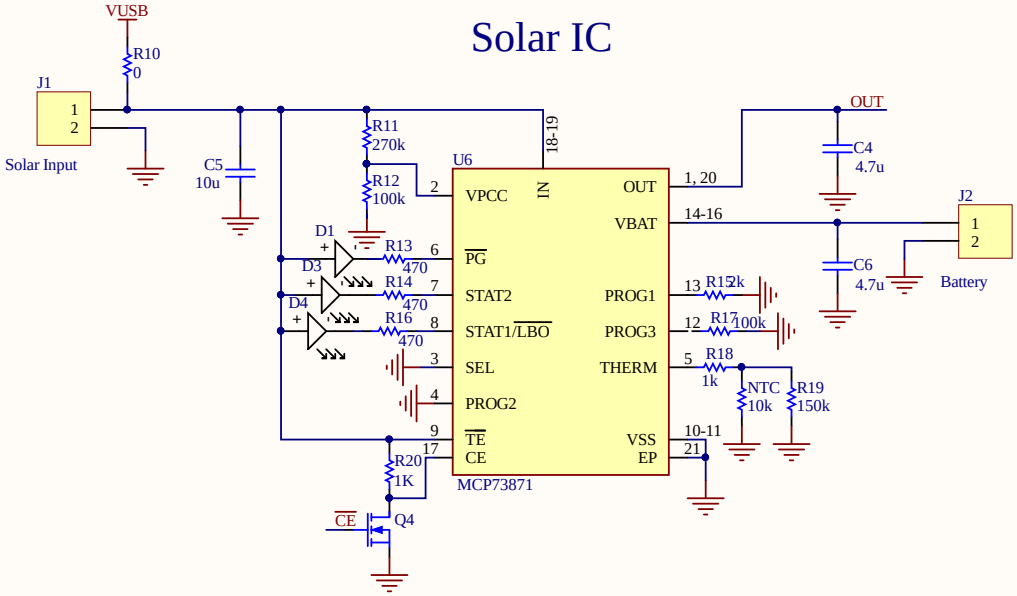
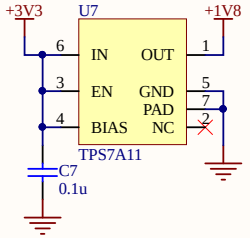
# Power

## Solar IC




## 1.8V LDO

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|---|---|---|
| Title **Weatherbot** | | Notes<br>- PROG2:L sets 100mA charge limit<br>- U1 provides +3V3 |
| Battery Charge & Power Management | Revision: 1 | |
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| File: Power.SchDoc | | |

# Glossary

## Design Notes

- Power In: Solar Panel(J1), USB(U1)

## Questions

1. none listed

## Connector Description

- none listed

## Design Opens

- Power protection subsystem (validate)
- Is display soldered or header connect?
- Consider connection of DNC pins
- Review rail capacitance placement
- Is power path U6.OUT->U1.VBAT valid? What about U1.USB->U6.IN?

## Rail Description

- +3V3 +3.3V system voltage
- +1V8 +1.8 system voltage
- VUSB +5V system supply
- VBAT Battery terminal voltage

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| Design notes & opens | Revision: 1 | |
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