

- Disable interrupts
 - Get wifi working with no resets
 - Save version 1.1
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- Radiation event is triggering on change not falling
 - Rework timer interrupts into tickers
 - Check thingspeak lib revision
 - Swap out esp32 module
 - Change ticker0 to 100ms
 - Check thingspeak webpage
 - Diagnose double reset at powerup
 - Save version 1.2
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- Vary duty cycle when injecting to radiation event gpio pin
 - Remove arduino.h and check tickers
 - limit disabling of interrupts
 - Add delays around ThingSpeak write
 - Save version 1.3
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- Restore standard thingspeak library
 - Timing of location and movement sensors
 - Restart user input timer in settings
 - Save version 1.4
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- Process sensor data
 - Retry reconfig of location processing
 - Change the way settings exits
 - Change no buzzer timeout handling
 - Diagnose timing of wifi debug messages
 - Save version 1.5
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- Remove mutex from interrupt
 - Disable modules until no resets
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- Rework sms process into states
 - Swap out esp32
 - ***** Reflash ESP32 firmware *****
 - Incorporate sms power relay
 - Save version 1.6
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- Build second breadboard
 - Update first breadboard circuits
 - Build third breadboard with minimal hw

- Location sensor to state process
 - Double check stability (I2C problem persists)
 - Implement watchdog reset
 - Save version 1.7
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- Incorporate neopixel wheel
 - Redesign status colors
 - Save version 1.8
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- Store reset reasons
 - Change neopixel library
 - Increase sample rate of location sensor
 - Break sms exit and location update into smaller pieces
 - Change sms power down logic
 - Stagger sms timing sampling and update
 - Change watchdog reset function from esp.restart to noobs something
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- Test new thermistors
 - Shorten loop delays
 - Save version 1.9
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- Time keeping process
 - Double check timer0 setup
 - Firm up settings definition
 - Standard vs developer settings
 - Save version 1.10
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- Set all signals at reset
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- Integrate sim900 module
 - ***** Reflash SIM900 firmware *****
 - Signal strength, reset
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- Create sim card verification program
 - Test a several sim cards
 - Save version 1.11
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- sms network verification
 - powerdown verification
 - sms send and receive protocol
 - sim900 sleep
 - Reset triggering
 - Power supply

- Save version 1.12
- Modularization
- OOP
- Test air quality sensor
- Water sensor as multilevel analog input
- Save version 3.0
- Remove extra sms debug printing
- Save version 3.1
- Alarm and subsystem fault processing
- Save alarm state into flash
- Save version 3.2
- Send sms alarms and receive sms commands
- Select data for wifi update
- Save version 3.3
- Test new movement sensor inputs
- Split fast and slow sampling
- Analog input filter
- Time keeping
- Save version 3.4
- Reset sms only on not OK response
- Better scanning for sms response results
- Retry receive disable message
- Only cycle power after several registration verify failures
- Create system background process to handle sms suspension
- Add thingspeak data
- Save version 3.5
- A) Power subsystem
- Switching on all power taps with relays
- Voltage sense of 12v battery level
- Sense external power
- Switchable 5v for gas sensors using FET module
- Turn off wifi if no external power
- Measure current of each power tap
- Save version

C) 8 channel analog mux

Tie not enable to gnd

Add delay after analog mux channel selection

Direct flow to run state

Don't double setup Bluetooth begin

1 OTA

B) Seismometer test

- 2 Enable debug messages to print through bluetooth
- 3 Allow for multiple thingspeak channels
- Fine tune water sensor thresholds
- Filter location and radiation readings
- Delay gas sensor calibration until after warm up
- Calculate units of measures
- Time and location stamp sms messages
- Save version

- Split setup and begin methods
- Final Modularization
- Save version

- Verify stability, Try adding btsart
- Perform resilience testing
- Investigate if mcu can be put to sleep while receiving radiation interrupt