Main Loop

- Heartbeat
- Get a valid user token from Artik
    - On failed attempts increase delay between attempts

- Get a valid user ID from Artik
    - Failure Conditions
        - Rest API Auth error
        - WebSocket Auth error
        - WebSocket user error
        - Quota Exceeded
            - We begin throttling our requests
    - On failure, we invalidate the user token

- Sync device list with Artik Initially, and on successful token refreshes
    - If sync successful
        - Send Zone statuses to Artik
        - Send Scene statuses to Artik
        - Send "Sync complete" message to Artik
    - On failure, we invalidate the user token

- Handle incoming Artik messages and tasks
    - This is where we parse commands from the cloud
        - Add Zone
        - Add Scene
        - Rename Zone
        - Rename Scene
        - Delete Device
        - Send WebSocket Packet
    - Failure Conditions
        - Rest API Auth error
        - WebSocket Auth error
        - WebSocket User error
    - On failure, we invalidate the user token

- Handle Artik WebSocket messages

- If there is a ping timeout (we don't respond often enough to Artik), we must clear the user ID and the user token and get a new valid token / user ID
- Failure Conditions
    - Rest API auth error
- On failure, we invalidate the user token

- Finally, re-register devices with the Artik WebSocket if needed
    - Hub device can be used for FW updates

Flowchart

```
                    ┌─────────┐
                    │  Start  │
                    └─────────┘
                         │
                         ▼
                    ┌──────────┐ ◄────────────────────────────────────────────────────────────────────┐
                    │Heartbeat │                                                                        │
                    └──────────┘                                                                        │
                         │                                            ┌──────────┐                      │
                         │                                            │Clear User│                      │
                         │                                            │ ID and   │                      │
                         │                                            │ Token    │                      │
                         │                                            └──────────┘                      │
                         │                                                 ▲                            │
                         │                                                 │ Error or ping timeout      │
                         ▼       True        True         False           │                            │
  ┌────────────┐    ◇─────────◇ ──── ◇─────────◇ ──── ◇─────────◇ ──── ┌────────┐   Handle   ◇─────────◇ Success ┌──────────┐
  │            │    │Valid Artik│    │Valid Artik│    │Sync Device│    │Handle  │  WebSocket  │Handle   │ ──────► │Re-register│
  │            │    │  Token?   │    │ User ID?  │    │List with  │    │Artik   │  Messages   │WebSocket│         │devices w/ │
  │            │    ◇─────────◇      ◇─────────◇      │ Artik?    │    │Messages│◄─────────── │Messages │         │  Artik    │
  │            │        │False          │False       ◇─────────◇      │/ Tasks │             ◇─────────◇         │WebSocket  │
  │            │        │               │                │ True       └────────┘                                 │           │
  │            │        │               ▼                ▼                 ▲                                     │(if needed)│
  │            │        │  Failure ┌──────────┐    ┌──────────┐            │                                     └──────────┘
  │            │◄───────┤◄──────── │Get User ID│    │Sync Device│          │
  │            │        │          │From Artik │    │List with  │          │
  │            │        │          └──────────┘    │ Artik     │          │
  │            │        ▼                          └──────────┘          │
  │            │   ┌──────────┐                          │                 │
  └────────────┘   │Get Token  │      False         ◇─────────◇           │
        ▲          │From Artik │◄──────────────────│Sync Device│          │
        │          │           │                   │List with  │          │
        └──────────│(increase  │                   │Artik      │          │
                   │ delay     │                   │Successful?│          │
                   │ between   │                   ◇─────────◇           │
                   │ failed    │                        │ True            │
                   │attempts)  │                        ▼                 │
                   └──────────┘                   ┌──────────┐            │
                                                  │Send Zone  │            │
                                                  │Statuses to│            │
                                                  │Artik      │            │
                                                  └──────────┘            │
                                                        │                 │
                                                        ▼                 │
                                                  ┌──────────┐            │
                                                  │Send Scene │            │
                                                  │Statuses to│            │
                                                  │Artik      │            │
                                                  └──────────┘            │
                                                        │                 │
                                                        ▼                 │
                                                  ┌──────────┐            │
                                                  │Report Setup│──────────┘
                                                  │Completion  │
                                                  │to Artik    │
                                                  └──────────┘
```