Adaptive Stress Reduction Module

What it is:

- A chest worn module to track physiological state paired with a breathing software designed to give personalized breathing routines to reduce stress

What it does:

1. Measures users stress via chest worn sensor array
2. Use ML/LLM to prescribe personalized breathing exercise
3. Continuously adjust meditation guidence to optimize stress reduction based on biometric feedback

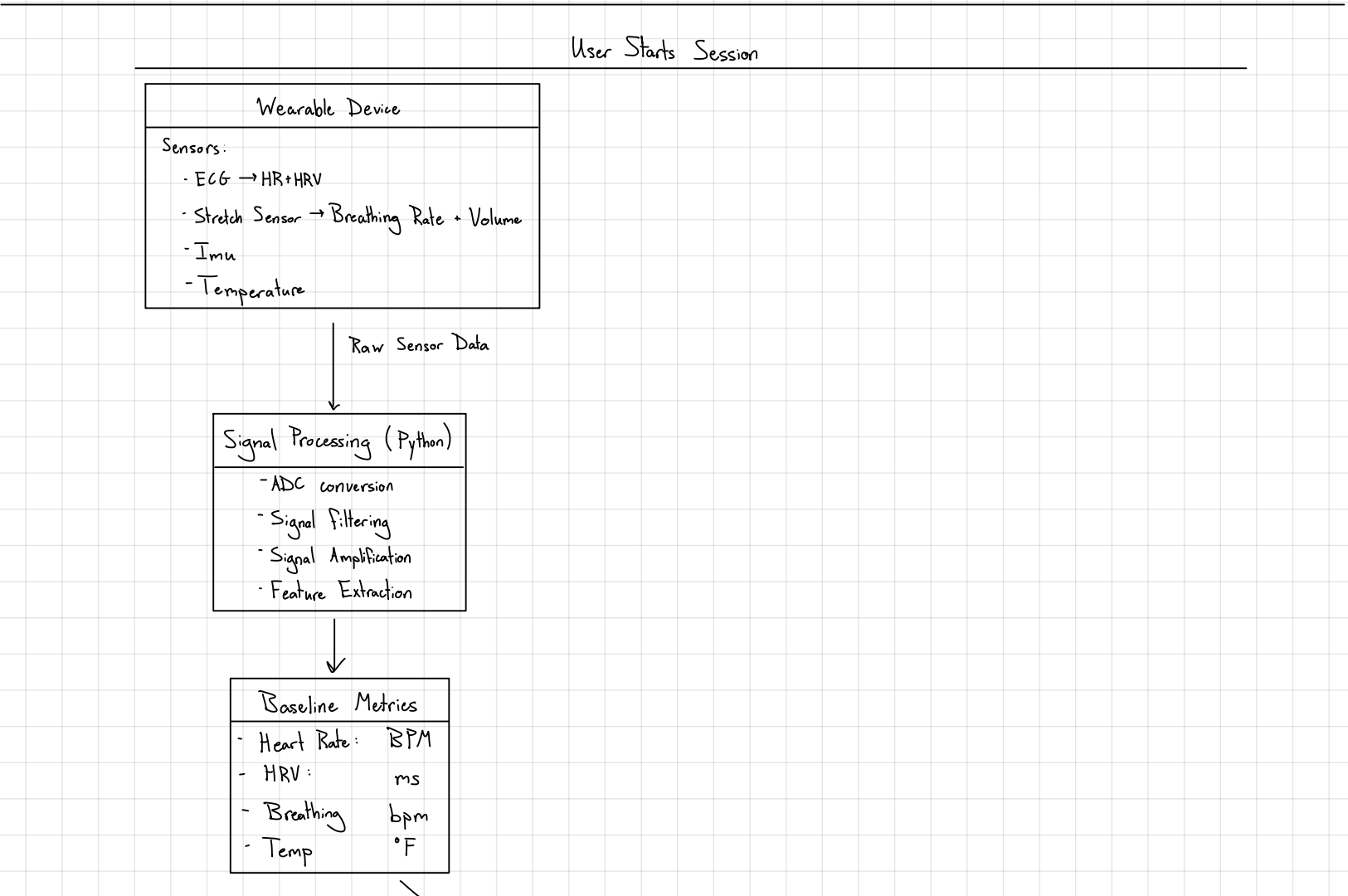
Key Features

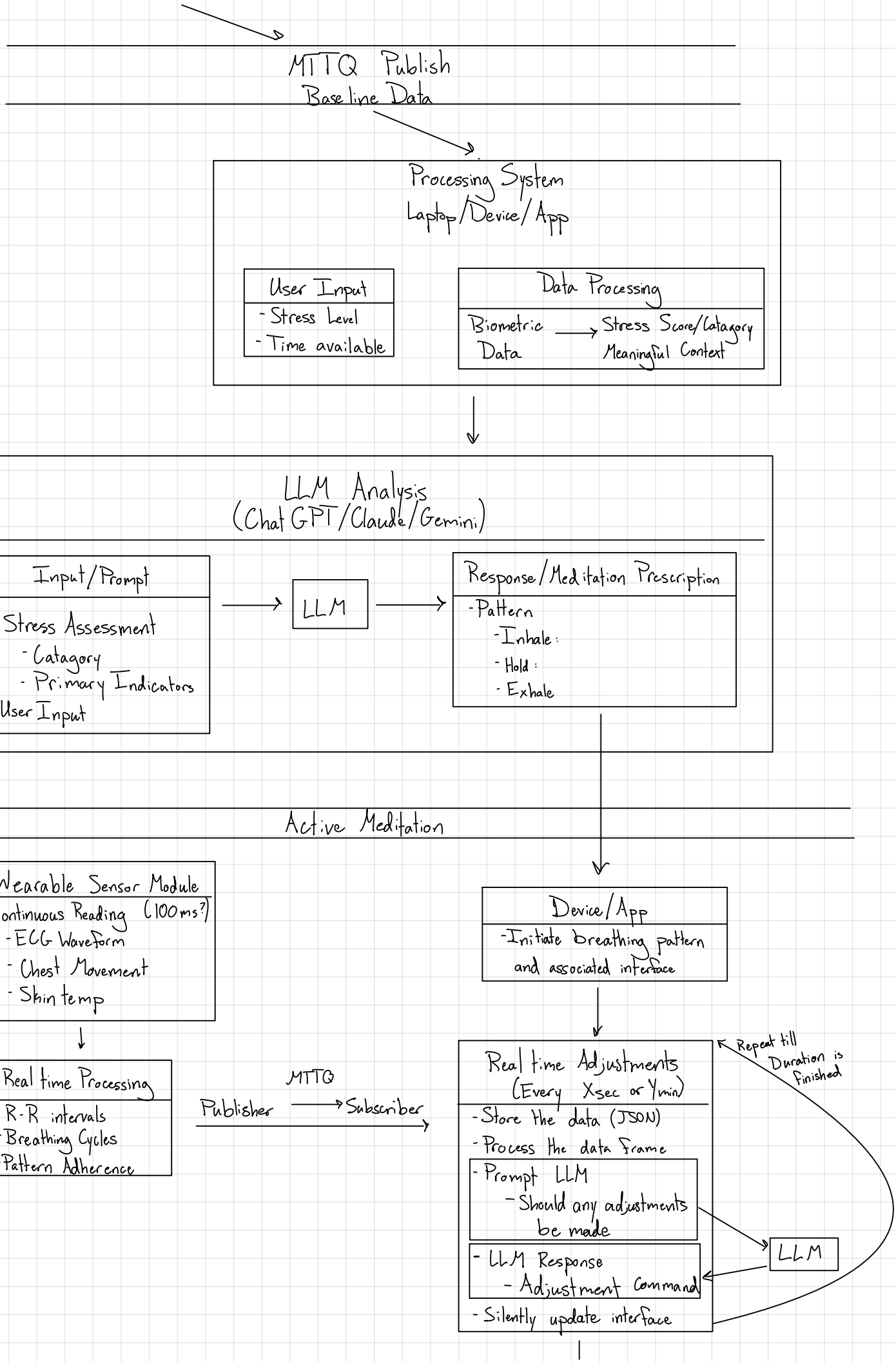
1. Real time biometric monitoring (ECG, breathing movement, temperature)
2. AI driven meditation practices with real time adjustems personalized to the user
3. Session feedback and stress reduction metrics

Workflow:

1. Session Initiation → Baseline Measurement → AI Perscription
2. Active Meditation → Continuous Monitoring → AI driven Adjustment to optimize session
3. Session Completion → Analysis → Results presentation

Data Flow




MTTQ Publish
Baseline Data
Processing System
Laptop/Device/App
User Input
- Stress Level
- Time available
Data Processing
Biometric Data
Stress Score/Catagory
Meaningful Context
LLM Analysis
(ChatGPT/Claude/Gemini)
Input/Prompt
- Stress Assessment
- Catagory
- Primary Indicators
- User Input
LLM
Response/Meditation Prescription
- Pattern
- Inhale:
- Hold:
- Exhale
Active Meditation
Wearable Sensor Module
Continuous Reading (100ms?)
- ECG Waveform
- Chest Movement
- Skin temp
Device/App
- Initiate breathing pattern and associated interface
Real time Processing
- R-R intervals
- Breathing Cycles
- Pattern Adherence
MTTQ
Publisher
Subscriber
Real time Adjustments
(Every Xsec or Ymin)
- Store the data (JSON)
- Process the data frame
- Prompt LLM
- Should any adjustments be made
LLM
- LLM Response
- Adjustment Command
- Silently update interface
Repeat till Duration is finished

Completion / Exit

Final Metrics (Wearable)

Continuous Reading
- ECG Waveform
- Chest Movement
- Skin temp

→
- R-R intervals
- Breathing Cycles
- Pattern Adherence

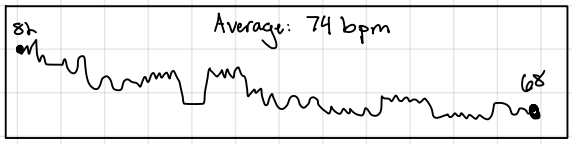
Publisher → Subscriber (MTTQ)

Device / App
- Store Data (JSON)
- Session analysis

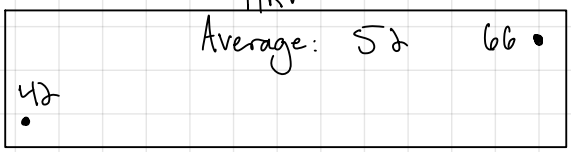
Visualization Dashboard

Stress Reduction Achieved

Heart Rate



HRV



AI Insights
"Excellent! ....."

Note: Data Storage could be
- SIQ Light
- JSON

Would Store
- User Baseline
- Session history
- Effectiveness metrics

Store the Session
- Store key metrics of session in SIQ light
  - User Baseline
  - Session Info
  - Effectiveness Metric