```
┌─────────────────┐   ┌─────────────────┐   ┌─────────────────┐   ┌─────────────────┐
│  MPU6050        │   │  AD8232         │   │  MAX30102       │   │  MLX90614       │
│  (Fall Detection)│   │  (ECG Heartrate)│   │  (SpO2 and      │   │  Temperature    │
│                 │   │                 │   │  Heartrate)     │   │                 │
└─────────────────┘   └─────────────────┘   └─────────────────┘   └─────────────────┘
```

ESP32 Device
(IoT Medical Device)

MQTT over TLS

HiveMQ Cloud Broker
(MQTT Broker)

MQTT Data Stream

Telegraf
(MQTT Consumer)

Data Ingestion

InfluxDB
(Time-Series Database)

Data Query

Grafana
(Visualization & Monitoring)

Monitored Parameters:
- ECG Heart Rate (bpm)
- Battery Level (%)
- Raw ECG Signal (optional)
- Temperature
- Fall Detection
- Heartrate (bpm)

Technologies Used:
Hardware:
- ESP32 Microcontroller
- AD8232 ECG sensor module
- MLX90614 Temperature
- MAX30102 SpO2 and Heartrate
- MPU6050 Fall Detection
- Power monitoring circuitry

Software:
- MQTT Protocol
- HiveMQ Cloud
- Telegraf
- InfluxDB v2
- Grafana
- Ubuntu Linux