



Use Case: Early diagnosis of pathologies impact gait (Like Charcot foot, MSK troubles) via real-time data capture and edge & cloud processing.

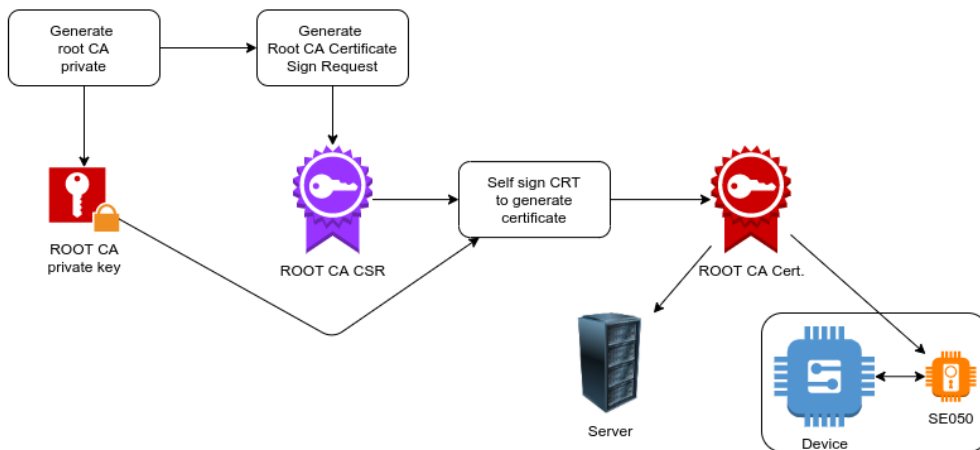
NXP team's contribution to this project consists in supporting IMU (inertial measurement unit) devices prototyping. These devices shall measure user movement and send data over Bluetooth® Low Energy (Bluetooth LE) to a bracelet or smartphone. Then, the bracelet (built around i.MX RT500) or smartphone computes data locally according to a model developed by project partners or send data using an internet connection to a remote server for further processing.

Involved NXP ICs: Accelerometers, magnetometers and gyroscopes used to compute quaternion @ 60Hz using dedicated QN9080 Fusion processor and send data over BLUETOOTH LE to another QN9080 concentrator device. Up to 12 connections can be established simultaneously to a single concentrator.

Data is either computed at the edge on i.MXRT500 or sent to cloud via a mobile phone as a gateway. Because of the nature of data (health) and for privacy reasons, the transfer occurs via TLS (Transport Layer Security) and our prototyping includes key management in SE050.



*The goal of this project is to provide IMU (inertial measurement unit) devices connected to a bracelet or smartphone using Bluetooth LE. These devices shall measure user movement and send data over Bluetooth LE to a bracelet or smartphone. The, the bracelet or smartphone will store data and send data using an internet connection to a remote server.*



Lead partner Hextransforma Healthcare will use USB QN9080 dongles delivered by NXP to perform modifications to create IMU prototypes in an acceptable form factor for the devices to run on a battery and be worn.