



SOFTGENT

WHITE PAPER

Technical Solution for Epidemiological Quarantine Patients Monitoring

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The COVID-19 pandemic has turned our world around. Many of us freely decided to isolate ourselves to slow down the spread of the virus. However some people have been forced to quarantine as a result of potential exposure to the virus. The efficiency of such quarantine requires a lot of discipline from people and requires a lot of effort from sanitary services. Drastically increased number of people sent to isolation will result in several operation challenges related to monitoring quarantine efficiency. With the spread of infections more vulnerable patients may be asked to stay at home – and become a subject of sanitary services monitoring.

Softgent's **FLEXGENT IoT** solution is ready **for large scale deployment**, inexpensive solution that can enable remote patients monitoring for quarantined conditions. It provides number of benefits to sanitary services that are at the frontline of war with epidemics:



Enable quarantined patients to perform scheduled as recommended self-health checks



Utilize wireless BTLE thermometers, pulsometers and blood pressure gauge connected to the system for accurate results that are resistant to human errors



Record measurement results in proprietary Quarantine Record System with advanced reporting capabilities



Enable patients to quickly call sanitary services in case of emergency

Besides these obvious benefits for sanitary services, the solution allows to provision, control and manage all medical devices that have been deployed to patients under quarantine.

Flexgent system components for quarantine patients monitoring

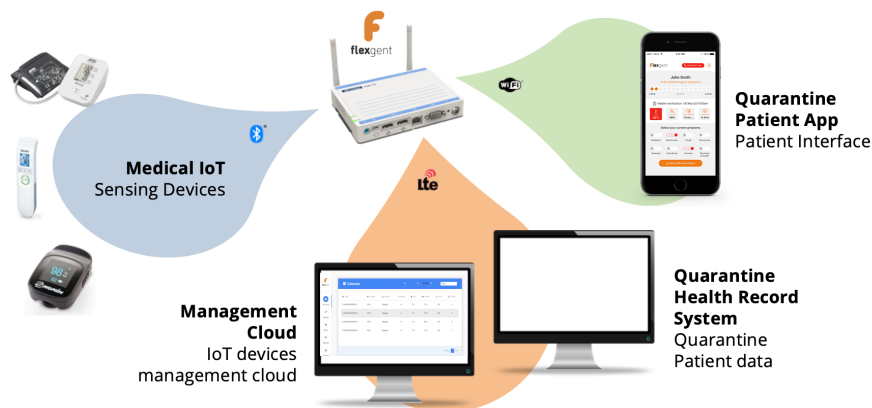


Figure 1. Flexgent System Components

System for remote quarantine patients monitoring is composed of the following components:



Flexgent Gateway that provides connectivity to BTLE Medical Devices and Quarantine Record System. **Each gateway:**

- is provisioned with a list of BTLE devices that are specifically authorized to make measurements. It is not possible to make measurements with unauthorized devices;
- is connected through mobile network (LTE) with Secure Cloud Based Quarantine Record System for storing medical qualification results. It is possible to utilize any Electronic Health Record System used by sanitary service providers. The gateway supports HL7 and can support any required Rest-API;
- is configured not to store any quarantine patient data limiting itself to identifying it with a hash tag that can be decoded only by the Quarantine Record System.



BTLE Medical Devices

- Thermometer that provides human body temperature readings ;
- Pulse oximeter for SpO2 and PRbmp measurements;
- Blood pressure gauge for SYS mmHg, DIA mmHg, and P/min measurements.



Mobile friendly (Android/iOS) Quarantine Patient Application

that provides the following features:

- Show patients period of quarantine and progress among that period;
- Alert patients at predefined health verification intervals to remind about medical checks;
- Show actual readings obtained from BTLE Medical Devices;
- Allow Quarantine Patients to make emergency calls directly to Sanitary Service providers to report any alarming symptoms
- Allow Quarantine Patients to provide subjective results to disease specific health checks:

Fatigue

Runny nose

Headache

Sneezing

Muscle pain

Sore throat

Cough

Shortness of breath



Figure 2. Quarantine Patient Mobile Application Interface

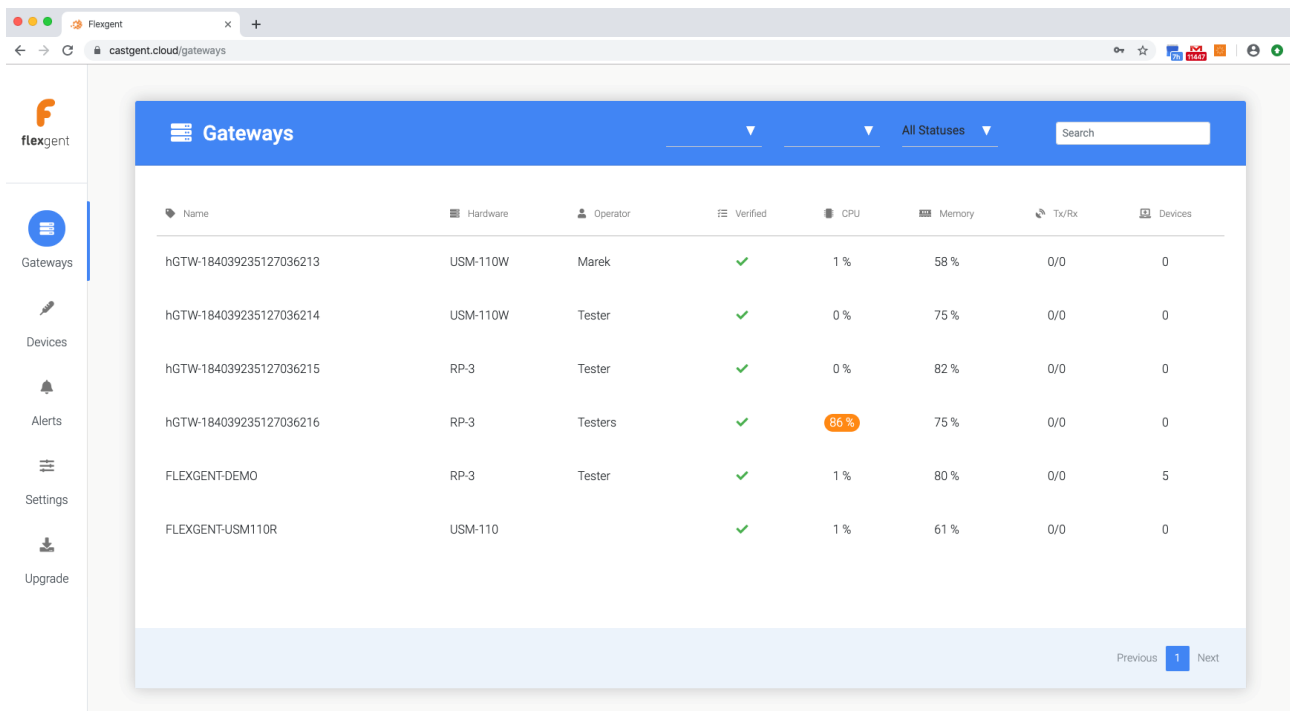


Cloud based **Device Management Platform** designed for Sanitary Services IT personnel allowing device provisioning, control and management.



Quarantine Record System that provides set of meaningful information to Sanitary Services about health conditions of any patient controlled by the system featuring:

- Detailed patient view, location, each measurement results etc.;
- Trends based on location, intensity of symptoms etc.;
- Quick access to patients with symptoms of disturbing intensity;
- Records of emergency calls.



Name	Hardware	Operator	Verified	CPU	Memory	Tx/Rx	Devices
hGTW-184039235127036213	USM-110W	Marek	✓	1 %	58 %	0/0	0
hGTW-184039235127036214	USM-110W	Tester	✓	0 %	75 %	0/0	0
hGTW-184039235127036215	RP-3	Tester	✓	0 %	82 %	0/0	0
hGTW-184039235127036216	RP-3	Testers	✓	86 %	75 %	0/0	0
FLEXGENT-DEMO	RP-3	Tester	✓	1 %	80 %	0/0	5
FLEXGENT-USM110R	USM-110		✓	1 %	61 %	0/0	0

Figure 3. Cloud Base Device Management Platform Interface

System Availability

Softgent has been working on telemedicine solutions since almost two years delivering a set of proved connectivity, communication components with management software. We have also presented several mobile application concepts to our customers that can be easily adopted and customized for specific needs. We are working with various EHR systems that can be integrated by using HL7 or proprietary communication protocols. Our proprietary Health Record System can be easily customized as Quarantine Record System for home isolated patient monitoring. We encourage institutions responsible for effective quarantine to contact the goals of cooperation and rapid system implementation.

About Softgent

SOFTGENT Sp. z o.o. is an engineering company specializing in AI, communication and IoT. Softgent models software and hardware blocks, helping their clients manage the entire data chain including data collection, to-the-edge transfer and back end processing. They twist concepts into innovations and enable clients to win by increasing product competitiveness. Softgent's Flexgent software stack is a hardware agnostic solution for an easy and secure IoT, that can significantly reduce time-to-market and deployment costs. Advergent product utilizes Softgent's AI software components to improve retail market digital signage advertising efficiency. For more information, visit www.softgent.com