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Internet of things

# IoT application healthcare

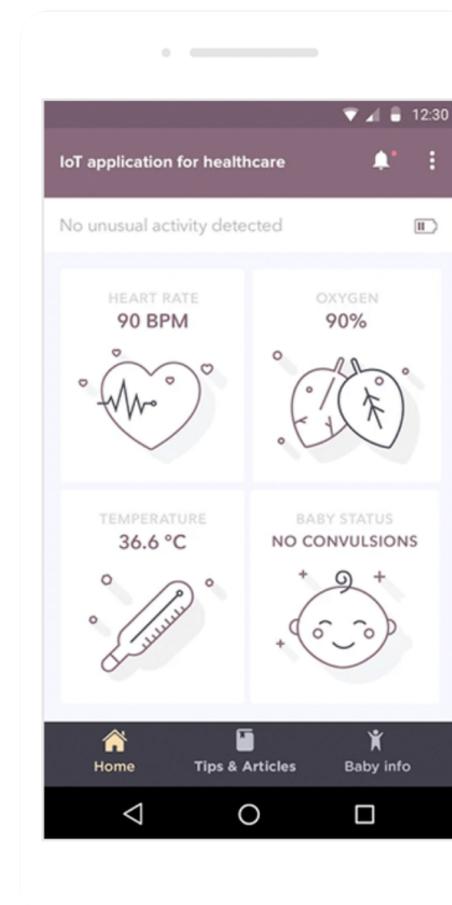
Internet of things, mobile app

## Project description

An IoT device that constantly monitors the state of a newborn and sends alarms about dangerous health conditions to an application via Wi-Fi. The app addresses the deepest fears parents have regarding their newborn's life: death while sleeping due to respiratory or cardiac problems, elevated temperature, high temperature convulsions, and supervision-free situations. The device is a baby foot bracelet with sensors that monitors oxygen saturation, pulse rate and skin temperature.

## Business Value

The app will be an addition to common video nanny program, but will allow parents to control the physical condition of their child (temperature and heart rate, which is not possible to see on a video), even while being on a distance.



# Ellenex

## Internet of things, mobile app

### Challenge

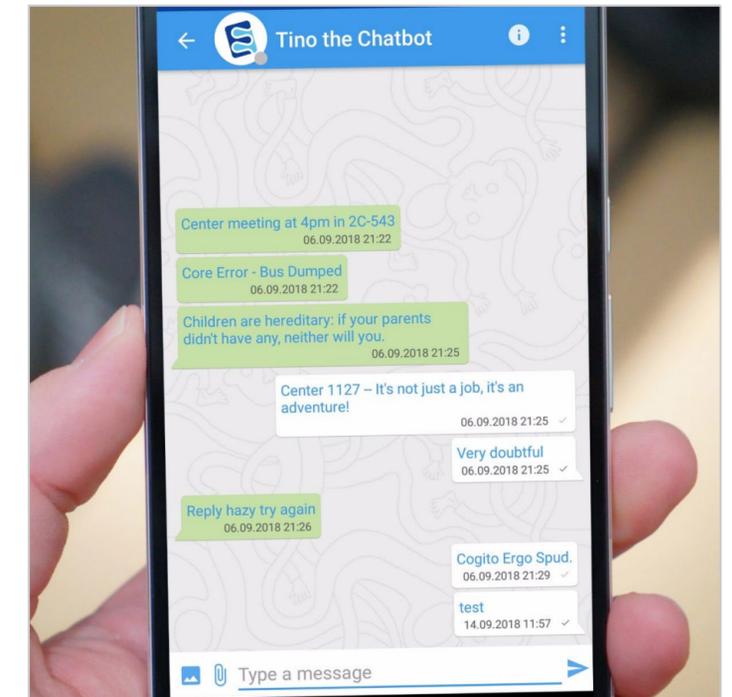
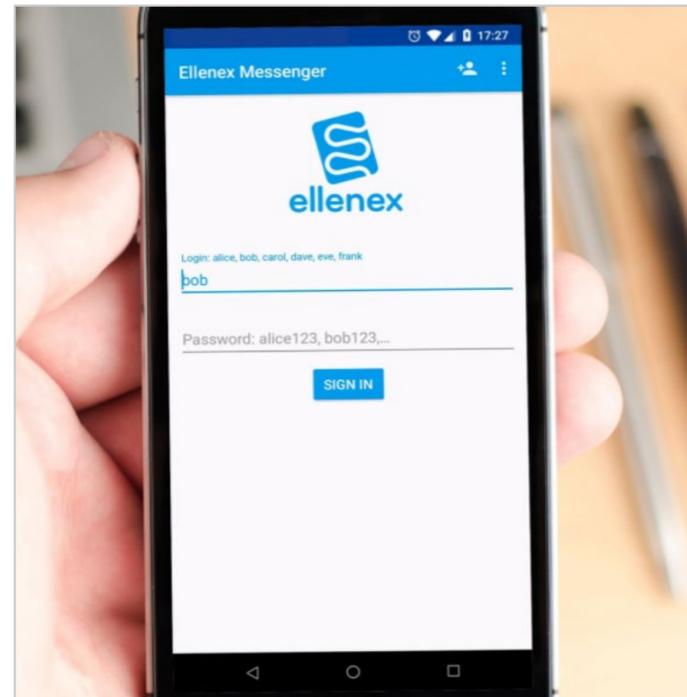
The Australian Ellenex company manufactures high-precision sensors which measure water pressure and level. They are used in energy and food industries, construction, agriculture and other sectors. Smart sensors can be pooled into a global wireless network as part of the industrial Internet of Things technology. However, the manufacturer had no mobile software solution they could offer to their customers. The application had to be able to integrate with the smart sensor network on order to enable an operator to remotely operate the equipment via mobile devices.

### Solution

Data collected from sensors had to be translated into a readable form to enable company employees to promptly respond to any abnormalities in measured values and carry out maintenance or repair works on the equipment. For this purpose, we had to elaborate a sophisticated solution based on a virtual assistant capable of processing sensor measurements and display them on a screen as plain-text messages. The application also had to be able to automatically detect the nearest sensors and let the user select the ones to read data from. We started to implement an algorithm to find the equipment and communicate with it, which would let operators in production facilities easily detect any faults and above-limit values by just walking through the plant with a mobile device in their hand. Our client-side interface was based on the React Native framework, while server-side components were based on Amazon Cognito (a part of the Amazon Web Services). Image for current step

### Result

The application was simultaneously released for the two most popular platforms, iOS and Android. Integrating a virtual assistant significantly improved operator response times to any changes in key equipment metrics and emerging faults. Employees in manufacturing companies mostly stay in the field rather than spend their working time at a computer. That is why they are not able to monitor a vast network of sensors in real time. Now, our mobile application does it for them.



# Intelligent HVAC System

Internet of things, web and mobile app

Intelligent HVAC System based on IoT Smart Building Technology

## Challenge

Our client had only a few months until the release and we wanted to make a high-quality and multifunctional output even on such short notice. The project's type had required enhanced security. Ensuring proper monitoring was very important to prevent any setbacks which can appear in such heating and cooling systems. Also, we needed to build a virtual system that corresponds to the physical one. And it was not an easy task due to the lack of access to the main Unix OS and equipment.

## Solution

1. An ASP.NET MVC web application from scratch and integrated it with a simplified simulation algorithm created by the Client team. This application is responsible for starting the simulation of HVAC and user management for sales representatives. It allows them to calculate the profitability for each client and make a proposal.
2. A system for scheduling simulation and data acquisition which reads HVAC system sensors' data, together with Real-Time Control configuring HVAC system sensors' parameters.
3. A single-user ASP.NET core web application that provides an interface for configuring all parts of the entire system and consists of end-user and admin user parts. The end-user is allowed to preview system parameters' history and predictions calculated based on the current system's conditions. The admin is authorized to configure the application and system's parameters.

## Results

The team managed to release the project on time. Now the client has a consistently working product that is highly configurable and provides the full functionality for the users. By using this developed service, the client's company controls and successfully optimizes two-million square feet of buildings by upgrading schools, hospitals, office and manufacturing buildings, military bases, municipal buildings.



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