

DEVELOCO



EXPERTS IN

**Electronics
Embedded Software
Wireless Communication Technology
IoT Solutions**

Develco - Your Independent, Innovative and Preferred Development Partner

Develco is an experienced and independent development house offering a full-service concept with focus on Product Development and Production Management.

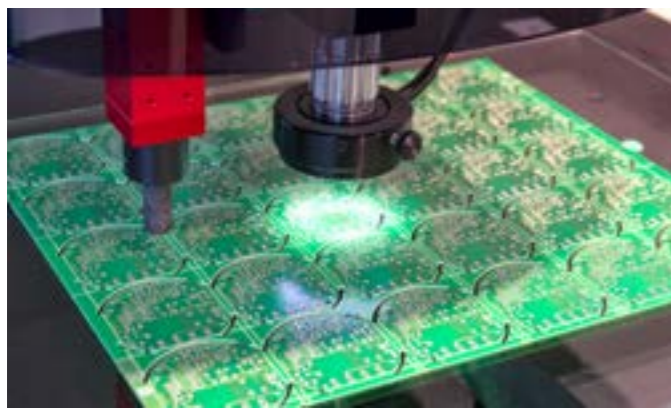
Product Development



With Develco as development partner you will be safely guided to the best product solutions. Development of electronics, embedded software, wireless communication technology and IoT solutions are among our core competences governed by excellent project management. We develop innovative products and solutions for public institutions, municipalities and industrial customers with their own product range. Our product development expertise comprises:

- Software
- Hardware
- Mechanics
- Design for Manufacturing
- Test and Approvals

Production Management



Our full-service concept includes transformation of your product idea into a successful ready-to-launch product solution with production management throughout the entire value chain and product life cycle. Develco offers New Product Introduction (NPI) and our Production Management expertise comprises:

- Co-operation with EMS (Electronic Manufacturing Services)
- Production Documentation to EMS
- Control and Contingency Plan
- Test Planning and Coverage
- Quality Assurance
- Box Build
- Shipping

Quality Assurance



When co-operating with Develco you can expect the highest quality in our development of your new product idea. We constantly strive for improving our development methods in order to ensure the highest quality and meet defined requirements. We develop your innovative product with functionality and durability according to agreed business conditions with your company. Design for manufacturing is paramount for Develco to ensure the best quality in the production process and a low production cost.

Develco has a ISO 9001:2015 certified quality management system, which is a common tool for all employees for supporting continuous improvement in quality, efficient management and focus on creating value for our customers.



Corporate Social Responsibility CSR

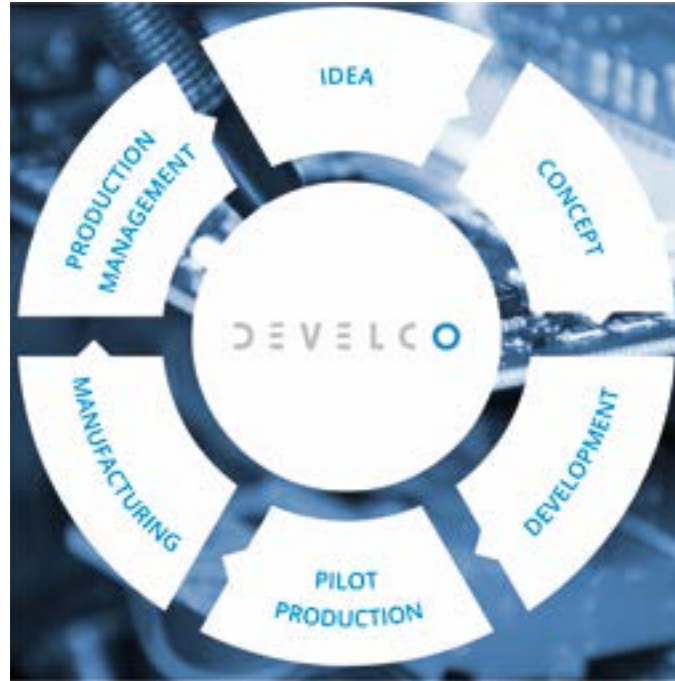


Develco acknowledges and accepts its social responsibility as a company. We have a CSR policy, in which we commit to act in a socially responsible way, taking into consideration human rights, social and working conditions, the environment and climate change issues. In addition, Develco focuses on sustainability and only co-operates with sub-suppliers having a CSR policy about their social responsibility.

Develco follows the principles issued by UN Global Compact, which is a global initiative launched in 1999. The objective of UN Global Compact is to involve private enterprises and make them contribute to solving some of the substantial social and environmental changes arising in the wake of the globalization. Today UN Global Compact is one of the largest voluntary global networks for companies involved in Corporate Social Responsibility CSR. At Develco CSR is an integrated part of the day to day management.



From Product Idea to Production

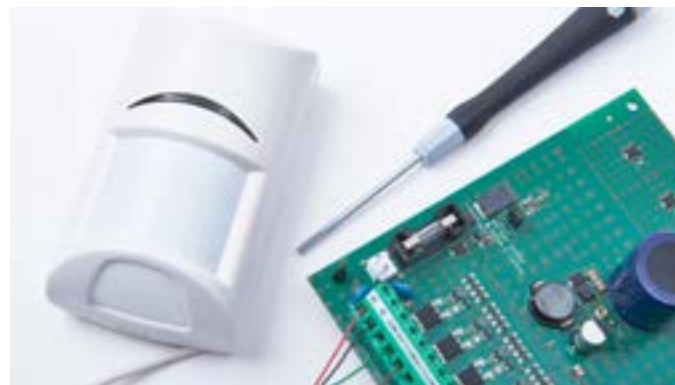


With Develco as development partner for your new product idea you co-operate with a development house handling the entire development process. Develco develops product solutions according to a well proven stage gate model through the following phases:

- Idea
- Concept
- Development
- Pilot Production
- Manufacturing
- Production Management

Any development project has to meet Develco's high quality standards. By choosing Develco's full service concept we will be responsible right from your first product idea to the time when your product is to be withdrawn from the market and replaced by a new developed product meeting the future technological needs in the market. Our highly competent team provides a full-service offering, giving customers a winning edge.

Competences



Develco has competences in a wide variety of technologies which include sensors, protocols, wireless communication, motor control, gateways and Internet of Things (IoT). Owing to new business models, industrial customers, municipalities, and public institutions demand intelligent solutions for business and society. Develco can guide you to the world of IoT solutions with billions of connected devices transmitting data over long distances into cloud solutions for further big data analysis and probably new business opportunities with even smarter and faster technologies.

Wireless Communication Technology



Develco has a long experience within wireless communication and works with a wide range of protocols for communication solutions. During a development project Develco chooses the best wireless solution fulfilling the customer's demands and needs listed in the specifications and qualifications of a specific new product.

Grundfos Connect Box G501



PRODUCT FACTS

- Ethernet 10/100 connection
- Prepared for WLAN
- Wireless 2,4GHz communication for control of up to 5 pumps/systems
- 3 generic and completely configurable interface ports. Analog voltage or current input or output. Configurable pull up or down or high speed PWM in- or output
- SD Card and USB port for datalogging
- Potential free NO/NC control output

Grundfos has had a leading technological position within pumps for many years and with the gateway Grundfos Connect Box G501 – an IoT solution developed by Develco – Grundfos has also taken the lead in the service section. The Connect Box G501 can easily and safely connect Grundfos pumps and systems to GRM Grundfos Remote Management system. GRM provides Grundfos with access to big data on all monitored systems and thus, a valid analytical basis for optimization of both services and pumps installed in e.g. commercial buildings, water supply networks and sewage systems.

Efficient monitoring of pumping systems has major safety and economic importance in prevention of breakdowns or extraordinary load and improvement of plant performance. With the Connect Box G501 Grundfos has achieved full advantage of the GRM connecting all institutional users with Grundfos pumps to the system.

IoT Multi Platform with Small Compact Design and Many Functions



PRODUCT FACTS

- Cortex M7, 216 MHz processor with FreeRTOS
- WiFi communication
- TFT-LCD color display with MIPI DSI interface and capacitive touch
- Bluetooth Low Energy for communication with smartphones
- 2,4 GHz high gain integrated PCB antenna design
- Ultra low power design for optimum battery lifetime
- Interface to and control of MEMS sensors
- MEMS microphone with Pulse Density Modulation (PDM)
- Speaker

Develco has developed a generic smart IoT multi platform with user interfaces and a number of MEMS sensors to measure temperature, magnetic field, gyro, air pressure, sound and acceleration. The multi platform can be built into various products and transmit data to the cloud. Depending on the applications of the multi platform the number of sensors can either be increased or reduced.

The IoT multi platform can be used as a smartwatch for sport, an information media for guard and service staff, a small embedded computer in coffee machines and height adjustable beds, a control of alarm systems etc. The software in the multi platform is prepared for touch screen and for transmission of data to the cloud. Develco can develop the right user interface customized to the applications of the customers.

Frederiksberg Smart City



PRODUCT FACTS

- Wireless M-Bus
- WLAN
- MQTT protocol handling
- PoE (Power over Ethernet)
- Linux platform

CUSTOMER STATEMENT

“Develco has been a highly qualified sparring partner in connection with the choice of wireless technology, which is a difficult context-dependent decision. So, we have had Develco to develop a solution that matches our needs”, says Project Manager, Digitization Peter Daugbjerg Sørensen at Frederiksberg Forsyning.

The Municipality of Frederiksberg has become a smart city collecting household consumption data sent to a cloud solution for analysis of big data and optimization of energy consumption.

Frederiksberg Forsyning delivers water, heating and electricity to the Municipality of Frederiksberg and has more than 1000 gateways suspended in the street lightning and connected wirelessly to heat and water meters in the individual households. The gateways are PoE connected to a network of Access points to cover collection points for consumption data. Frederiksberg Forsyning has got access to real-time data allowing for better and more precise regulation of district heating and water supply and savings in operating expenses. The smart city solution in Frederiksberg Municipality has a positive impact on the environment and contributes to sustainability.

Develco has developed both advanced application-level software implemented in a multi wireless platform enabled gateway and an outdoor use enclosure for the electronics. The application-level software enables the gateway to relay meter data from domestic meters to a cloud service. The software supports configuration of the gateway by the cloud service through a proprietary communication protocol designed and specified by Develco using the MQTT transport layer. For maintenance and update Develco has developed an autonomous and secure software update mechanism for the gateway, thereby making it possible to extend and correct the functionality of the gateway after initial deployment. Finally, Develco has managed production setup and is responsible for production and logistics.

Anyware Smart Adaptor™



PRODUCT FACTS

- Functions as a light dimmer
- Embedded sensors for measuring of light, temperature, humidity and sound
- Wireless communication via Bluetooth Low Energy
- WiFi-connection with its own IP address
- Installation via the smartphone Anyware Home App™
- Europe: Outer thread in the size E27 and inner thread fits to E14 bulbs
- USA: Outer thread in the size E26 and inner thread fits to E12 bulbs

CUSTOMER STATEMENT

“The development of the adaptor has been a question about finding the balance between functionality and design. We have succeeded owing to Develco’s competences. Develco were willing to develop the project, even though it was inexperienced development. Develco’s wide experience within IoT products was crucial and the reason that we now have a product obtaining high recognition. Anyware has won an innovation award in the smart home category at the CES 2018 fair in Las Vegas”, says Co-Founder & Partner Jan H. Christiansen at Anyware Solutions.

For the smart home Develco has developed the Anyware Smart Adaptor™ – a small, complex and multiple featured device. The adaptor functions as a light dimmer, monitors the indoor climate in your home and can be used as an intrusion alarm. With WiFi, Bluetooth and the Anyware Home App™ on the smartphone the consumer can measure light, temperature, humidity and sound. All data from the sensors in the discreet and elegant adaptor are sent to the Cloud.

With a special designed flex-rigid printed circuit board Develco packed 133 electronic components into a small lamp socket adaptor. The PCB is placed between the inner and outer threads in the socket. An E14 LED bulb is screwed into the adaptor to be mounted into an E27 lamp socket.

Intelligent Copenhagen Blinds



PRODUCT FACTS

- Wireless communication at 868,4 MHz
- Z-wave plus™ certified
- Other Z-wave products regardless of brand can be used together with the system
- The blinds are Frequently Listening Routing Slaves FLiRS
- Processor, SMPS, motor driver, battery charger and antenna in one ø40mm PCB
- One PCB and one software cover all sizes of blinds
- Contains one battery consisting of 4 Li-Ion cells
- Time between charges + 1 year at “normal use”
- Automatic calibration of motor control by installation
- Security stops by unexpected load
- Positioning within a few mm – also for groups of blinds

CUSTOMER STATEMENT

“Our learning has been that it can be difficult with development projects comprising both digital and physical elements”, says Development Manager Henrik Søgaard Pedersen at Inwido.
 “You must have a more ad-hoc access – take a little step and see what to do next. From the physical products we are used to a stage-gate-process where we elaborate a time schedule, develop and finalize the development project. However, in the software world you are working on a sprint planning with short sprints and frequent evaluations of the progress. This we have learnt. We must not be so focused on plans, but be more flexible”, says Henrik Søgaard Pedersen.

The Danish design and development house Art Andersen and Inwido wanted to develop intelligent Venetian blinds with a beautiful design and an IoT solution for the smart home. Art Andersen and Inwido chose Develco as technological development partner.

Develco has been responsible for the embedded software and the hardware in the blinds. Develco has developed and implemented the electronics for motor control, battery control and wireless Z-wave communication. All the electronics are installed discretely in a small control unit containing all the necessary mechanics. The control unit fits into the top cylinder of the blinds without interrupting the design.

The Copenhagen blinds can be programmed and controlled via a smartphone App for a comfortable indoor environment and a precise regulation of the position of the blinds in order to fit the user’s needs.

Develco as Development Partner



We Co-operate with Your Company

Develco is both a flexible development house and a professional co-operation partner. We have an ongoing and constructive communication and dialogue with our customers during the entire development process. Our highly qualified engineers and project managers are dedicated to develop and realize your new product idea.

We Realize Your Innovative Product Idea

Before the initial development meeting with your company Develco has studied your business and the needs for developing a new technological product solution to your company. Our high commitment to the development process results in innovative technological product solutions giving your company a competitive advantage in your market with fierce competition.

Develco as Development Partner



We Manage Your Development Project according to Plans

Our project management controls the development of your new product solution in a very structured process based on our stage gate model. At the same time we manage our development projects with flexibility in order to optimize the final product solution. In addition to the structure and the flexibility in our project management Develco finalizes your development project according to agreed plans and conditions. We are very aware that time to market for a new product solution is a factor of high importance in transparent markets with high competition.

We Take Responsibility for Your Entire Development Process

Develco is your flexible, creative and competent development partner and takes responsibility for the entire development process from the initial product idea to deliveries of your final new product solution. We build strong business relations to our customers based on responsibility and trust. With your choice of Develco as your development partner you can focus on your core business, while we focus on the development of your new important innovative product idea.



DEVELCO 
Your Development Partner for Innovative Electronics and Embedded Software Solutions

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