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## **Bosch is becoming a part of everyday healthcare** The technology company enters the medical sector

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- ▶ Bosch Healthcare Solutions GmbH offers customers connected products and services at the intersection of healthcare and medical technology
- ▶ World-first breath analysis device that improves quality of life for asthmatics
- ▶ Solutions based on Bosch core competencies: sensor technology, software, and services.

Waiblingen, Germany – Some 330 million people worldwide, or one in 20, are asthmatics. They can now look forward to a world premiere: Bosch Healthcare Solutions GmbH is entering the medical technology market with Vivatmo me. This is the first breath analysis device that allows asthmatics to measure the severity of airway inflammation from the comfort of their own home. This means they can closely monitor their condition – similar to how diabetics monitor their blood sugar levels. They save the data using the Vivatmo app and share it with their physician, who can then analyze these additional values. As a result, they are able to tailor treatment more precisely to each patient's requirements.

### **A new company for healthcare solutions**

In establishing the new Bosch Healthcare Solutions GmbH subsidiary, the supplier of technology and services is aiming to tap into the growing medical technology market. In 2015, this market was worth some 350 billion euros, with annual growth of around 3 percent. "We see the internet of things as a paradigm shift. It not only impacts our daily lives, but will also forever change the nature of healthcare," says Dr. Volkmar Denner, chairman of the board of management of Robert Bosch GmbH. "We want to harness the technological potential of connectivity to make a decisive contribution to improving healthcare, and thus the quality of life of millions of people. Bosch solutions will become a part of everyday healthcare."

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### **Healthcare solutions draw on core competencies**

Bosch Healthcare Solutions develops and markets products and services that promote health. More than 80 associates are currently employed at the company's headquarters in Waiblingen, which is also where the Vivatmo device is made. The Bosch Healthcare Solutions portfolio draws heavily on the Bosch Group's core competencies: sensors to collect data, software to evaluate that data, and services based on this data analysis. In all product development, strong partners provide a wealth of expertise: Bosch's corporate sector for research and advance engineering provides the scientific basis for developing new products, while the Robert Bosch Hospital in Stuttgart lends its support in the development and testing of new healthcare solutions. "Bosch Healthcare Solutions benefits from the Bosch Group's unmatched network of expertise and experience. The winning combination of researchers, developers, and an agile team meant that we took our first products from the initial idea to being market-ready in a very short space of time," says Marc Meier, president of Bosch Healthcare Solutions GmbH.

In addition to Vivatmo, Bosch Healthcare Solutions will offer customers further connected products and services in the areas of healthcare and medical technology. One of these is the new Vivatar app, which acts as a virtual companion for people out and about on their own. In an emergency, the means to summon help is right at their fingertips.

The product portfolio also features functional components made of high-performance ceramics made at the Bosch location in Blaichach, Germany: these are particularly stable and durable and are used to make surgical instruments, for instance. Here, Bosch Healthcare Solutions benefits from its parent company's manufacturing expertise: Bosch has built up some 100 years' experience in automotive ceramic applications.

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## **Bosch Healthcare Solutions develops the first patient device for asthmatics**

November 10, 2016

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- ▶ Premiere of Vivatmo me, the world's first patient device for measuring FeNO concentration, at MEDICA 2016 in Düsseldorf, the world's largest medical technology trade fair.
- ▶ The Vivatmo system makes it possible for the first time to monitor the treatment of patients with asthma even more closely.
- ▶ Regular breath gas analysis improves control of the disease, helping to optimize treatment and improve compliance.

Waiblingen, Germany – Bosch Healthcare Solutions is presenting the world's first patient device for asthmatics at MEDICA 2016 (November 14-17 in Düsseldorf). Vivatmo me measures the concentration of fractional exhaled nitric oxide (FeNO) in people with chronically inflamed airway diseases, such as allergic asthma. The FeNO concentration is a direct indicator of the degree of inflammation in eosinophilic airway diseases.<sup>1</sup> Patients can use Vivatmo me to monitor their treatment themselves, and can provide their physician with valuable information about the course of the disease and their response to treatment. This enables close monitoring of the patient's condition and, if necessary, a rapid adjustment of treatment. The Vivatmo system consists of Vivatmo pro, the device for physicians; Vivatmo me, the device for patients; and a Vivatmo app, developed especially for the patient device. This app wirelessly transmits the measured data via Bluetooth to the patient's smartphone, from where the information can be sent to the attending physician. When used in conjunction with the measurements made by Vivatmo pro, Vivatmo me's non-invasive technique can also help lower the exacerbation rate of asthma and in turn possibly reduce the administration of anti-inflammatory medication for this chronic condition, such as inhaled corticosteroids.<sup>2</sup>

### **FeNO as a biomarker for eosinophilic airway inflammation**

Even before a lung function test, an elevated FeNO concentration indicates a worsening of the condition and thus makes it possible to prescribe treatment to counteract it early on.<sup>1</sup> The American Thoracic Society (ATS) and other bodies

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recommend determining the FeNO concentration in expiratory airflow.<sup>1</sup> FeNO is highly accurate in predicting the (non-)responsiveness of inflammatory mediators on glucocorticoids.<sup>1</sup> Reduced need for medication as well as the avoidance of misdiagnosis, severe exacerbation of the disease, and acute emergency measures could improve the cost-effectiveness of asthma treatment.<sup>3</sup>

### **Considerable benefit – and not just for physicians**

Vivatmo me lets patients direct assess their own treatment for the first time. Using a procedure that is easy to integrate into their daily routine, patients can regularly measure their FeNO at home – similar to diabetics monitoring their blood sugar – and thereby objectively monitor their asthma. They learn to detect early on which individual factors improve or worsen their asthma. In turn, this can lead to a more confident and conscientious way of dealing with the condition.

Vivatmo pro was specially developed for use in clinical practice and, thanks to its simple measuring procedure and intuitive operation, is optimized for integration into clinical routines. This means physicians can be more effective in their everyday clinic work, enabling them to further improve the personalized treatment of patients. The Vivatmo pro device for physicians stands out from the competition in that it is wireless, requires no maintenance, and is simpler to operate. Working with the FeNO biomarker makes patient treatment more efficient, allowing a doctor's practice to save up to 160 euros per patient per year, depending on the severity of the asthma.<sup>4</sup> The Vivatmo system gives both doctor and patient more control over the disease. All Vivatmo devices are produced entirely within Germany.

### **About allergic asthma**

Asthma is a chronic inflammatory disease of the airways of the lungs, characterized by bronchial hypersensitivity in conjunction with a constriction of the airways. It is one of the most common chronic conditions. Some 5 percent of adults suffer from asthma, and 10 percent of children have it, making it the most common chronic condition in that group.<sup>5</sup> An allergic reaction is the cause of asthma in up to 80 percent of cases.<sup>6</sup> Symptoms range from a feeling of tightness in the chest to severe shortness of breath. They may be present constantly or occur in connection with environmental factors (such as pollen dispersal). Treatment options include drug (e.g. corticosteroids) and non-drug measures (e.g. patient education, respiratory physiotherapy).

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## **Vivatar – a digital guardian angel**

New app is a virtual companion during outdoor sports or on the way home

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- ▶ Friends and family digitally accompany users along the way
- ▶ Trained Bosch associates provide round-the-clock service
- ▶ Personal e-health card, for example for those with allergies or chronic disease

Waiblingen, Germany – Going jogging in the dark, or heading home on foot after the last bus has already left is enough to make anyone feel uneasy. And for parents, it can be a worrying feeling when their child sets off for home from a friend's house or a sports club late in the evening. This is where the new Bosch app comes in: Vivatar is the digital guardian angel for people out alone. People can use it to contact friends and family and be digitally “escorted” home via GPS. Users decide for themselves when they should be accompanied and by whom. Thanks to the integrated chat function, users and their companions can also communicate directly with one another. A premium version is also available, which offers the use of the Bosch emergency service and the storage of a personal e-health card. Effective immediately, Bosch is starting a test phase. Anyone interested in participating can sign up online at [www.vivatar.com](http://www.vivatar.com). The app is available for iOS and Android.

### **Feeling uneasy? Activate the danger countdown**

One special feature of Vivatar is its “danger countdown”: when users find themselves in a situation in which they don't wish to call emergency services but want their “digital companions” to be extra alert, they can activate a danger countdown with a single click. This sends a warning signal to inform the companion. If the user does not deactivate the danger countdown within two minutes, a telephone call is automatically put through and the loudspeaker is activated. The companion is then able to hear what is happening in the user's surroundings and can take further action if necessary.

### **Service subscription offers further benefits**

Besides the free version, Bosch also offers a premium subscription containing helpful additional services. All users can test the premium version for free for 30 days.

E-health card: Subscribers can use the e-health card to store any relevant information. This could be, for example, persons to contact in case of emergency, but also existing chronic conditions such as asthma or diabetes, current medication (insulin, blood pressure drugs), allergies to medication or food, as well as blood type.

Bosch emergency service: Available 24 hours a day, 365 days a year, the service can provide support in a wide range of situations. The Bosch associate who answers the emergency call can see the caller's precise location as well as their e-health card, and can thus provide appropriate support. Regardless of whether the user is currently in a situation they perceive as unsafe or if medical attention is needed following a cycling accident in the woods – Bosch associates professionally assess the present situation, calm the user, and lend competent assistance. If necessary, the associate can call local emergency personnel, report the user's precise location, and share any pertinent information from the user's e-health card.

The premium service costs 4.99 euros a month and can be canceled with notice to the end of the month.

### **At a glance: Vivatar – the digital guardian angel for people out alone**

- ▶ In the digital company of friends and family
- ▶ Location determined by GPS
- ▶ Chat and call function for users and companions
- ▶ Danger countdown puts companion on heightened alert
- ▶ Service subscription
  - Bosch emergency service offers professional assistance from trained Bosch associates
  - E-health card contains important information (such as health status, contact persons)
  - 4.99 euros per month (free trial for 30 days!)
  - Can be canceled with notice to the end of the month
- ▶ Registration for the test phase already open at [www.vivatar.com](http://www.vivatar.com)

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