

Media release

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CTI Medtech Award 2010 goes to Empa Spin-off

«Intelligent» Bed Combats Pressure Sores

Further recognition for Empa's spin-off enterprise "compliant concept": on August 31st in Bern the team's work, "An Intelligent Bed System for the Prevention and Therapy of Decubitus Ulcers" was honored with the CTI Medtech Award 2010.

"And the winner is... 'compliant concept' – Michael Sauter and his team receive the CTI Medtech Award 2010" was the announcement heard in the Casino in Bern on August 31st. The Medtech Event organized by the CTI, the Swiss Innovation Promotion Agency, is the meeting place for all the main players in the medical technology branch in the country. At the conclusion of the event, the 400-odd attendees – representatives of research institutes and companies involved in medical technology – select the best project of the "Top 3", one of the 58 in this field that the CTI has supported in 2010. "There were so many outstanding projects that the jury had a very difficult task to decide on the best three", say CTI Director Klara Sekanina. "And with 'compliant concept' the CTI Medtech Award has gone to a worthy team." Michael Sauter is of course extremely pleased. "This award means a great deal to us. It is recognition of the hard work we have put in, and it shows that we are on the right path."

Long-term patients have to be moved continuously

Sauter and his team outdistanced the competition with their novel, flexible hospital bed system which prevents long-term bedridden patients in hospitals and nursing homes from developing much-feared decubitus ulcers, better known as bed-sores. These pressure sores, which can develop into full-blown ulcers, cause sufferers terrible pain. Generally they can be avoided by regularly shifting a patient's position in the bed, but this adds enormously to the work load of the health-care personnel involved. There are already beds on the market especially designed for patients with bed-sores, for example models based on the air-chamber system which ensure that the painful pressure points are relieved by regularly inflating and deflating air chambers as necessary. Such systems are not suitable for preventing pressure sores from developing, however, as they limit the mobility of the user.

Flexible materials make manufacturing economic

"compliant concept's" new nursing bed concept is based on a special slatted frame, made of "intelligent" materials, and a new mattress which, in combination, ensure that the bedridden occupant does not remain motionless in the same position for too long, but is gently and firmly moved. The special construction imitates the way that a healthy, mobile person changes position in bed. On the one hand, this is a great advantage

for the patient since it encourages mobility and activity. It is also simultaneously of great assistance to the health-care personnel, by reducing enormously the physical effort required to turn patients. The time saved can be spent on other important tasks such as improving personal contact with their charges. The novel concept on which the “compliant concept” bed is based is the use of joint-free mechanisms and a low-maintenance bed support system consisting of only a few individual parts. As a result, the manufacture of the bed system is an economic process. An additional advantage is that existing bed frames can be retro-fitted with the new slatted bed-frame / mattress combination.

Successfully tested at the Swiss Paraplegic Center

“We were determined not to lose sight of the wishes of both patients and health-care personnel even for a moment”, says Michael Sauter. To ensure this, the new bed was tested recently in the Swiss Paraplegic Center in Nottwil. “It is very important to have feedback from the people who are going to be using the new system on a daily basis. This includes not just the patients and the nursing staff but also the technical personnel and cleaning teams.” A new nursing bed only has a chance of becoming established if all the people involved in its use are convinced of its advantages over conventional beds. This is not just a question of how “practical” it is to use – future success also depends on seemingly unimportant details such as how easy it is to clean. “We have already evaluated the feedback we received and this will be taken into account in the further development of the system”, says Sauter. A second test will be undertaken at the end of September in Nottwil in order to collect more data on the medicinal aspects.

Successful partnership

Partners such as the Swiss Paraplegic Center and the decubitus ulcer expert Walter O. Seiler have been involved in the project since Michael Sauter launched the spin-off firm. “As a young company we are always on the lookout for new partners and suitable investors”, explains Sauter. While initially the focus was on developing the best possible product in technical terms, he is now concentrating on other challenges such as how to ensure the success of the new bed system on the market.

«compliant concept» – a brief portrait

The young company “compliant concept” is a spin-off from Empa and the ETH Zurich, having its origin in Empa’s “Mechanics for Modeling and Simulation” Laboratory. Founded in May 2009, the firm is located in the glaTec technology center on Empa’s Dübendorf site and is headed by CEO Michael Sauter, who holds a doctorate in mechanical engineering. Currently “compliant concept” has three employees.

With its aim of developing new technologies to make everyday life a little easier, «compliant concept» is involved in cooperative work with numerous industrial partners including OBA AG, Festo AG, Nauer AG, Bigla Care, Wissner-Bosserhoff GmbH, Sarna Plastec AG, Produ-Plast AG, Qualicut AG; the Swiss Paraplegic Center Nottwil and the HSR Hochschule für Technik Rapperswil (a member of the University of Applied Sciences of Eastern Switzerland, FHO).

In 2009 «compliant concept» received the Heuberger Winterthur Young Entrepreneurs Prize. In March Sauter was honored with the «Venture Idea 2010» award for one of the ten most innovative business ideas originating from Swiss Universities.

Further information

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The actively deformable slatted bed-frame structure ensures that bedridden patients are spared the development of bedsores (decubitus ulcers), which are extremely painful and difficult to treat.



Using a pressure sensitive mattress to determine critical regions for the development of decubitus ulcers and so optimize the mattress motion control system.



A quartzite stone from Vals and a cheque for CHF 10'000: the winner of the CTI Medtech Award 2010 is the Empa spin-off firm "compliant concept".

(L-to-r) CTI-Director Klara Sekanina; the «compliant concept» team: Michael Sauter, Florian Sauter and Stéphane Kaus; and Lutz Nolte, Head of CTI Medtech)

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