

With this Norwegian innovation, you brake with the tip of your finger

Norwegian SMART BRAKE will make it easier to brake bicycles, wheelchairs and other equipment for people with reduced handgrip. A fingertip is all it takes.

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After several years of development and pilot projects, the SMART BRAKE wireless braking solution is officially launched for use on bicycles, wheelchairs and other assistive devices.

- We are a little proud to have developed the world's first wireless solution for braking and propulsion in the mobility market. Working on this technology project has been incredibly fun, says Morten H. Østli.

He is Chairman of the board and one of the founders of the innovation company RollerSafe AS in Son in Akershus.

Weaker grip

Østli says that SMART BRAKE technology requires less than 10 percent handgrip strength compared to mechanical solutions. It also has wireless companion control.

Together with co-founder, childhood friend and co-owner Atle Stubberud, he now travels around the country to present the solution to users and professionals in the assistive technology system.

Started with rollerskis

Morten H. Østli and Atle Stubberud are respectively a business economist and industrial designer. What led them to the track of developing wireless brakes for the mobility market?

- We were both active on rollerskis and were tired of crashing and injuring ourselves, says Østli.

Thus, the idea of creating a solution arose so that they could better ensure controlled slowdown. They developed a hydraulic, electronic rollerski braking system, where braking occurs wirelessly by pushing switches on the ski poles. Through an app, the braking effect can be individually customized for the user, based on weight and desired braking effect.



Technician Henrik Karlstad (t.v.) and Chairman Morten Østli see many applications for SMART BRAKE, here as an effective braking solution on Prashberger Speedster Comp CC from Bardum AS.

- It's not that you can just brake at full power. Then you crash. So the whole thing is quite sophisticated, and we have tested it out under harsh conditions, including in Holmenkollen and in the Alps, Østli continues.

The founders have manufactured and sold the rollerskiing concept via a dedicated online store to enthusiastic users around the world. Now the mobility market is ready to implement the wireless braking system.

Reduces strain and injuries

Bicycles, wheelchairs, rollators and sitski sleds are some of the product areas the company has thrown their eyes at, and they have, among other things, delivered SMART BRAKE to the World

Champion Birgit Skarstein's sitski. Morten H. Østli believes it is obvious that SMART BRAKE can make these products more functional for users.

RollerSafe AS has been through preliminary studies with CatoSenteret to identify user needs. The fact that SMART BRAKE requires little braking power and makes it possible to brake without finger grip if necessary, means a lot to potential user groups.

SMART BRAKE can reduce strains and give the corresponding positive health effect.

The founders point out the well-documented fact that manual wheelchair users are at risk of contracting tendon inflammation and strain injuries to the hands, arms and shoulders.

- SMART BRAKE can reduce the load and give corresponding positive health effect. We are now working to adapt it to a universal solution for different wheelchair models in collaboration with manufacturers and distributors.

So far in the process it has been important for the entrepreneurs to have full control, but now they are open to outsource production to third parties as the volume grows.



LIMITED PRESSURE: SMART BRAKE requires only a small push on the handle to slow down. The transfer is done wirelessly to the disc brakes of the recumbent bike. The solution also acts as a parking brake, explains Henrik Karlstad.

Demanding development process

It takes time to develop sophisticated, technical solutions. As a small entrepreneurial company, one has to depend on support schemes and investors to reach their goals.

Morten H. Østli believes that the conditions in Norway are good for doing this type of development work.

- First, we have a system where the public finances the procurement of technical aids for the disabled. In other countries, users must largely cover this themselves, which limits the market. In addition, we have support schemes such as the Tax Fund, and for our part we have also received support from Innovation Norway and regional research funds such as the Oslofjord Fund. It has not been crucial, but has ensured that things have gone faster.

He also thinks that the challenges of producing equipment in the high-cost country of Norway can be solved.

- We buy many of the components from manufacturers in Asia. However, not everything can be bought. That is why we have developed our own production tools, which can be created and used by our partners. This is a step to cut costs in our small-scale production, says industrial designer Atle Stubberud.

New products under development

SMART BRAKE is a platform that is constantly being developed. Morten H. Østli explains that efforts are being made to develop solutions that can be used on several products. The company conducts continuous product development in collaboration with manufacturers and distributors at home and abroad, and they are announcing that there will be more solutions based on their wireless technology.

They tell of positive interest in SMART BRAKE abroad as well, and expect to distribute more than half of their production to international markets in 2020.

- But we need the home market as a base for developing and testing user-friendly solutions in the years to come.



MORE TIME ON THE BIKE: Bike enthusiast Anders Nupen Hansen loves biking. He hopes the new braking technology will help more people with reduced handgrip to test bicycling.

Enthusiastic test pilot

- I hope this new braking system will help more people be tempted to use the bike.

This is stated by the leader in the National Association for Spinal Cord Injury (LARS), Anders Nupen Hansen. He has many years of experience as an active cyclist and has worn out many bikes over the years.

Hansen is full of praise after trying the Prashberger bike with the SMART BRAKE system indoors in the corridors outside the Norwegian Disability Federation's premises in downtown Oslo. Anders hopes the new braking technology will help more people with reduced power to use the bike with all the freedom feeling and positive health effects it provides.

It is good that there are manufacturers who develop innovative solutions here in Norway.

- The test track is limited, I should probably try out the bike and the braking system on a 50 km stage to get the full impression under realistic driving conditions. That said, I'm very positive for RolleSafe's SMART BRAKE. It is good that there are manufacturers who develop innovative solutions here in Norway.

Hansen feels that the solution set up for him is a good fit.

- There are requirements for two brakes on bicycles in Norway, and this setup is right for me, with a mechanical brake and a brake lever with SMART BRAKE. I have limited hand force in one hand and I have to say it was incredibly easy to apply the brake on this hand. It could almost be done with a fingertip. Ingenious!

The only improvement he could wish for is shorter response time on the hydraulic brake. - It can be important in case of emergency braking, says Anders Nupen Hansen.