

## Oulu – the Silicon Valley of Europe

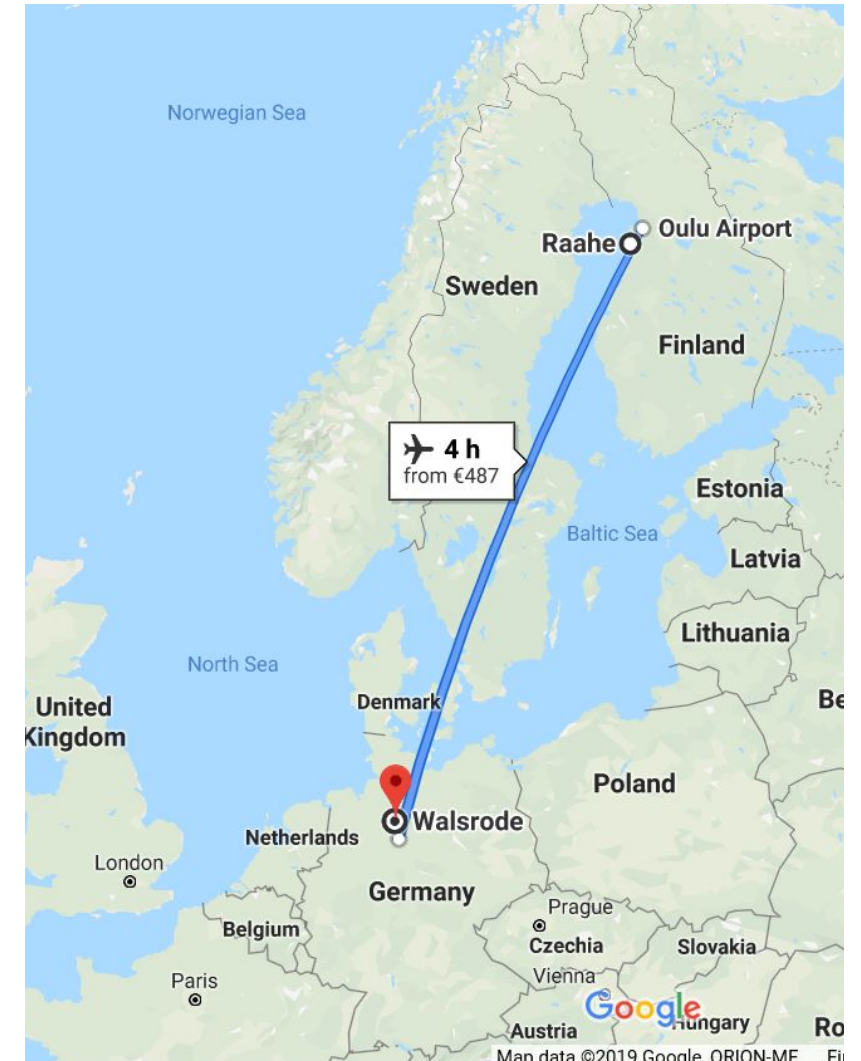
Oulu, the world's leader in wireless technology development, is the place where cutting-edge technology meets northern peace and stunning nature. The city boasts a 50-year long expertise in high technology and working together to make things happen. Can you imagine that Nokia story started from Oulu more than 50 years ago.

In Oulu novel ideas are developed into market ready products. The innovations related to modems, chip sets, terminal devices, information systems, cloud services and artificial intelligence will soon be commonly used with the arrival of 5G networks. Together with its partners, Oulu strives to answer global challenges and leave its mark on development for future generations. By combining expertise in wireless knowhow to different sectors, like health and life science technologies, smart ICT solutions are introduced in order to deliver advanced, personalized and connected health services.

## Raahe - A City With Lots of Nature

Raahe is the unyielding home port of its residents and companies, living and breathing along with the sea that embraces the town. It is a small and vibrant town surrounded by nature, a place of opposites living side by side.

Raahe is peculiarly appealing to those who have lived there for years as well as those who visit for the first time. In Raahe, you will find more time to live your life. In Raahe, you can be alone and together, make an impression and be impressed.



## Wearables – Polar invented them more than 40 years ago

Professor Seppo Säynäjäkangas in his ski runs, wondered how improvement in fitness could be measured. The idea of a small heart monitor was supported by the Finnish Ski Association and the Finnish Inventory Foundation. The patchwork fabric applied for a patent for its invention in 1975. Since then, the Polar heart rate monitor has become an international success product and a market leader in its field.

Early models consisted of a monitoring box with a set of electrode leads which attached to the chest. The first wireless EKG heart rate monitor was invented in 1977 by Polar Electro as a training aid for the Finnish National Cross Country Ski team. As "intensity training" became a popular concept in athletic circles in the mid-80s, retail sales of wireless personal heart monitors started in 1983. Consumer heart rate monitors are designed for everyday use and do not use wires to connect.



Alansa klassikko Polar Electron sykemittari PE-3000 vuosimallia 1988. Kuva: Erja Aikavuori.

A heart rate monitor (HRM) is a personal monitoring device that allows one to measure/display heart rate in real time or record the heart rate for later study. It is largely used to gather heart rate data while performing various types of physical exercise. Many people who exercise and exercise or lose weight achieve their goals when exercising in the right heart rate zone, calculated as a percentage of maximum heart rate.

The heart rate monitor usually has a strap-on transmitter portion which is electrically recorded by the electrodes of the heart and a wrist-like receiver mounted on the wrist. Advanced models transfer the data collected during a workout to a computer or calculate weekly and monthly results or calorie consumption.

Polar manufactures all its products in its own factories. Polar employs approximately 1,200 people worldwide, 26 subsidiaries worldwide, and a distribution network covering more than 35,000 in over 80 countries. Today, Polar has products ranging from beginner models to fitness products and training systems developed for the needs of top athletes.

The company is headquartered in Kempele, near Oulu and Raah.



## Oura - Meet the Benefits of Sleep

Oura Health Ltd. is a Finnish health technology company founded in 2013. Oura is the world's first wellness ring and app that shows how your body responds to your lifestyle by analyzing your sleep, activity levels, daily rhythms and the physiological responses in your body. Personalized for you, Oura guides you towards better sleep, recovery and readiness to perform. Oura has users in over 70 countries, and several top universities, research organizations, sleep clinics, and companies are utilizing the data and insights Oura provides. Oura Health Ltd.'s HQ and major manufacturing facilities are located in Oulu, Finland. Other locations include Helsinki and San Francisco.



The Oura Ring is the most accurate, comfortable and beautiful wearable focused on providing actionable information about sleep and readiness

Getting enough restorative sleep is critical for both cognitive and physical health. Oura's technology allows users to track sleep patterns over time, including how much time is spent in various sleep stages, as well as body temperature, respiratory rate, heart rate, and heart rate variability. Oura then makes recommendations for aligning activity and sleep schedules with your personal circadian rhythms and nightly restoration patterns.

Oura Ring is a market leader in the fast-growing wearable health tech market (projected at \$22 billion by 2022) and with Moment is expanding further into the \$4.2 trillion global wellness market. To date, Oura Rings have tracked over ten million nights of sleep for more than 75,000 users in 70 countries.

