

# Assistive technology manufacturer: from first idea to the final product

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# Introduction

- 10 years of my experience doing business and providing a service of medical devices
- 8 years of research & development of assistive technologies
- 7 years of selling the assistive technology for handicapped clients
- 200 installation of assistive devices

# Medicton Group Ltd.

- **2003:**
  - 2 technical university students founded a company based on providing service and development of medical devices
- **2004:**
  - e-shop with medical devices
  - ISO 17025 for metrological verification of medical devices
- **2005:**
  - transformation to Ltd.
- **2006:**
  - first own product (serial production)
    - Queue management system for patients

# PC control & Eye movements

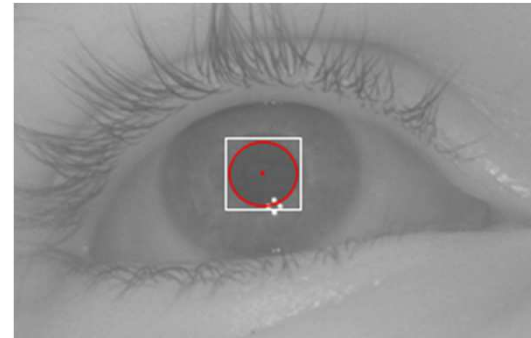
- **2002:**
  - Diploma thesis: The control of a personal computer by using the eye movements (Jan Fejt, Czech Technical University in Prague) based on the idea of Marcela Fejtová
- **2004:**
  - the first prototype of a contactless system for PC control Memrec
  - Czech Head award for Jan Fejt, Marcela Fejtová and Lenka Lhotská
- **2006:**
  - CTU Rector's Award for Marcela Fejtová and col.
  - Gold medal at International Engineering Fair in Brno





# CTU in Prague & Medicton

- **2007:**
  - **Cooperation between CTU in Prague and Medicton – License Agreement on right for using I4Control® trademark and technology**
  - **Marketing study and strategy**
    - Competitors
    - Who and where are our clients?
    - Selling channels in CZ and Europe
  - **Steps to real product**
    - From Linux to Windows application
    - Brand new pupil detection algorithm
    - Software development (user friendly)
    - HW miniaturization
    - Plug and play application
    - Testing in Jedlicka Institute
- **2008:**
  - **Serial production preparation**
  - **Medical device according to MDD 93/42/EEC**
    - January – June 2008: Certification at ETI Prague
    - July 2008: Clinica evaluation at General Hospital in Prague
    - August 2008: Registration of medical device at Ministry of Healthcare



# Production

- **2008:**
  - September the 2nd: a novel type of an computer periphery has been proposed and tested at press conference in Jedlicka institute
  - First real users and feedback from them
  - Cooperation with many foundations
    - 50% goverment support for assistive technologies in CZ (from 2013 90%)
  - On-line technical support of the users (remote administration)
- **2009 - 2010:**
  - Distribution in several EU countries (Slovakia, Hungary, Austria, Spain, Poland, ...)
  - e-Inclusion Award 2008 for e-Accessability
- **2011:**
  - Second generation of I4Control® system
    - New HW design
    - Extended SW functions



2004



2008



2011





- An assistive technology for motorically disabled users for a contactless control of a personal computer by using the eye or head movements
- Universal system: Emulates the computer mouse – communicates with all installed applications
- Easy to use pre-installed applications
  - internet browser
  - keyboards: pictogram keyboard, frequent dictionary keyboard, predictive keyboard, numeric keyboard.
  - notepad
  - mouse emulation
  - games



# Indication

- Diseases: ALS, Multiple Sclerosis, muscular dystrophy
- Brain and Spinal Cord Injury (SCI)
- Autism
- Cerebral palsy
- Development Delay
- Stroke/Aphasia
- Other verbal or motoric disorders

# I4Control: assembly

- Tiny B&W camera + light filters, IR LEDs
- Copper rod fixed to eyeglasses frame
- AllinOne box equipped with TV card, powered by PC USB
- Manufactured under ISO13485 & ISO9001



# Real users



# New features for 3<sup>rd</sup> generation

- Electrical appliances control
  - PC, radio, doors etc.
- HW integration into PC/tablet



# Thanks for your attention...



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