Evaluation of the optoNCDT ILR sensor

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S T U
F E I

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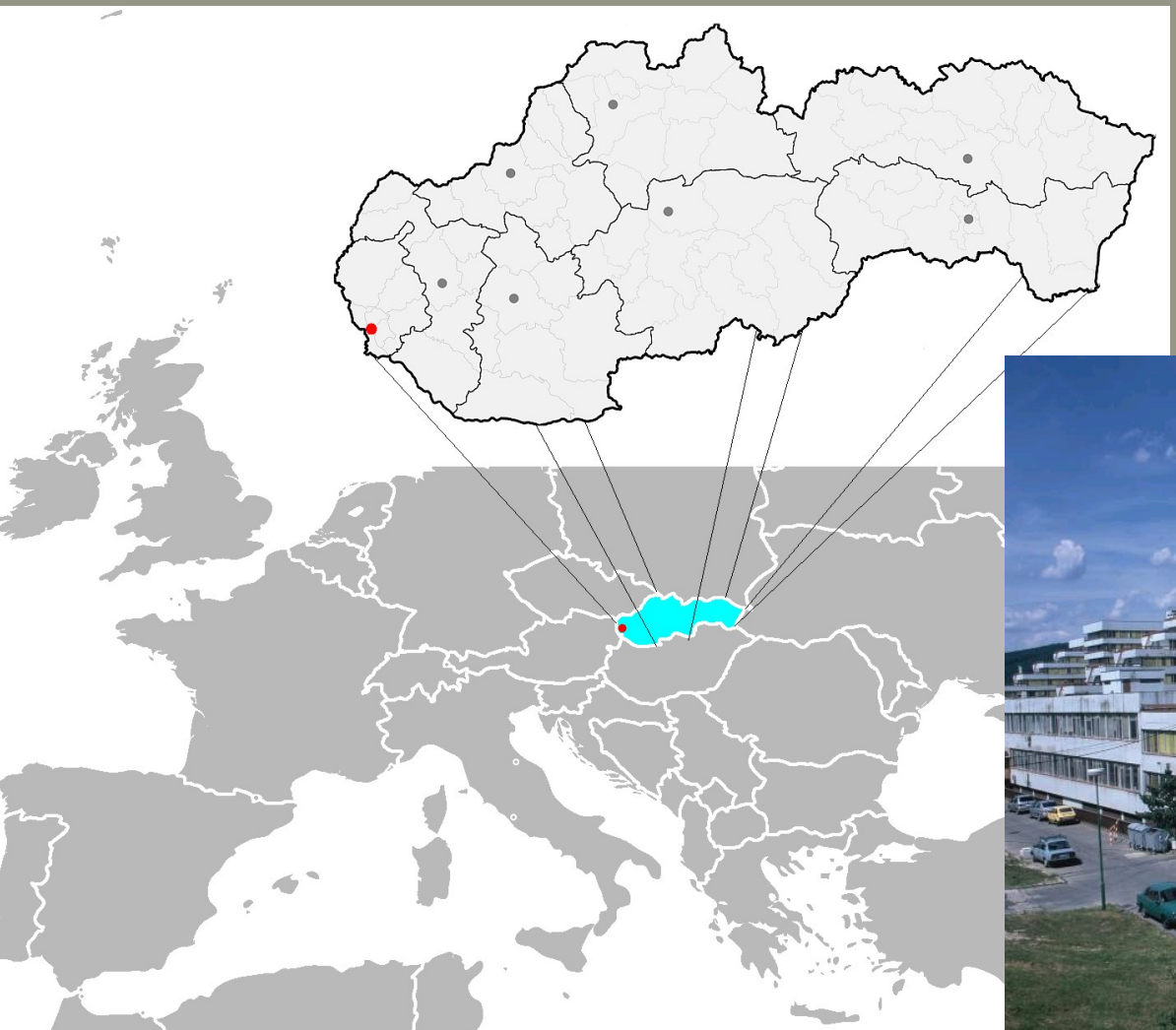
Slovak University of Technology in Bratislava



STU in numbers

19 000 students

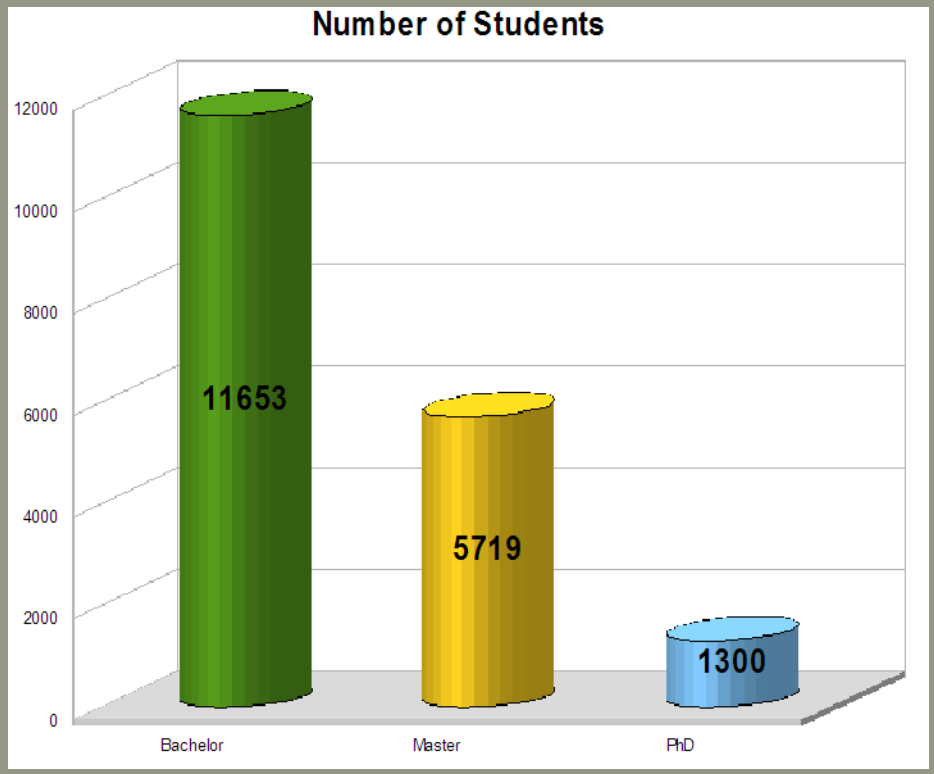
1 400 teaching/research staff

800 industrial contracts

600 state research projects

200 international projects

7 faculties (schools)



7 Faculties (schools)

- Faculty of Civil Engineering
- Faculty of Mechanical Engineering
- Faculty of Electrical Engineering and Information Technology
- Faculty of Chemical and Food Technology
- Faculty of Architecture
- Faculty of Material Sciences and Technology
- Faculty of Informatics and Information Technologies

Local environment mapping

Navigation, path planning, etc.

SICK

Hokuyo

Pros: precise, fast

Cons: price

STU FEI

MicroEpsilon optoNCDT

Standard industrial sensor

Distance, level, dimension control

Laser diode 660nm,

Time of flight sensor

5 ns impulses / 250 kHz

Range 0,2 – 2,5 m
Resolution 1 mm

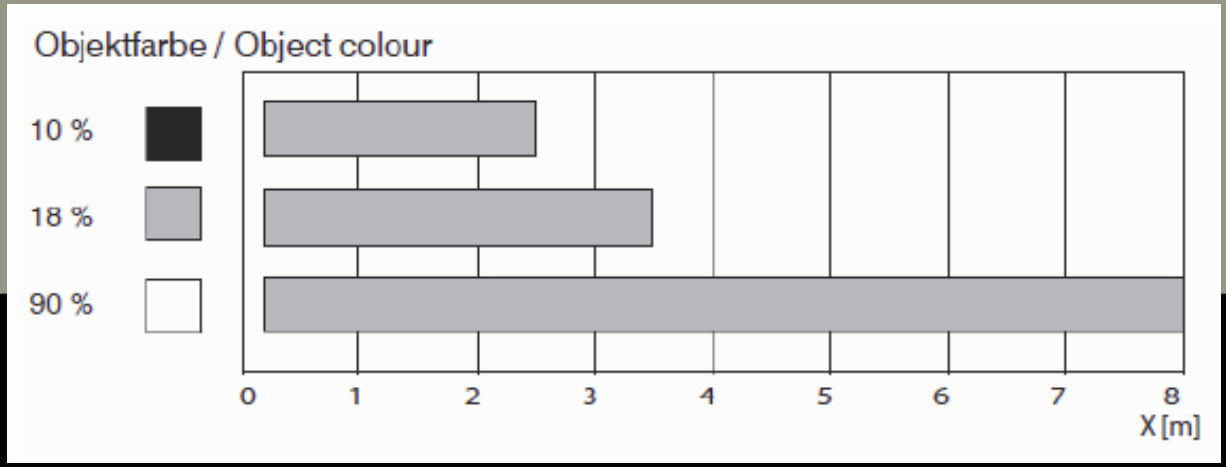
Standard analogue output 4/20 mA

MicroEpsilon optoNCDT

Power supply 10 – 30 VDC
Weight 90 g

Response time 10ms

Effective range



MicroEpsilon optoNCDT

Measurements
proved stated parameters

Consumption 100mA / 12V

Almost no color influence

Small spot size

TABLE I. COLOR SURFACES

color	current
D=100cm	[mA]
white	6,62
yellow	6,62
red	6,62
green	6,61
blue	6,61
black	6,61
black foam	6,61
mirror	6,62

TABLE II. SPOT DIMENSIONS

distance [cm]	spot dimensions [mm]
50	4,8 x 4,8
100	4,8 x 4,8
150	2,4 x 4,8
200	2,5 x 4,4
250	2,5 x 4,4
300	2,5 x 2,5

STU FEI

MicroEpsilon optoNCDT

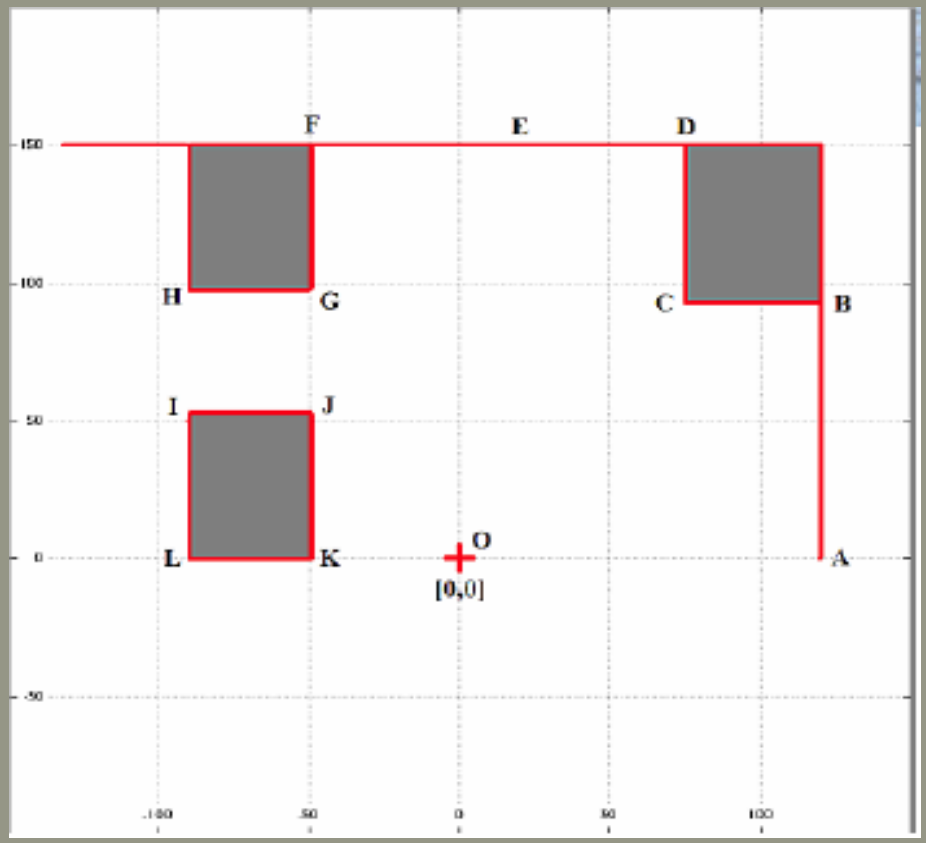
Dynamic properties

Step change of distance
(orifice plate and motor)

Measured rise time 11,5 ms

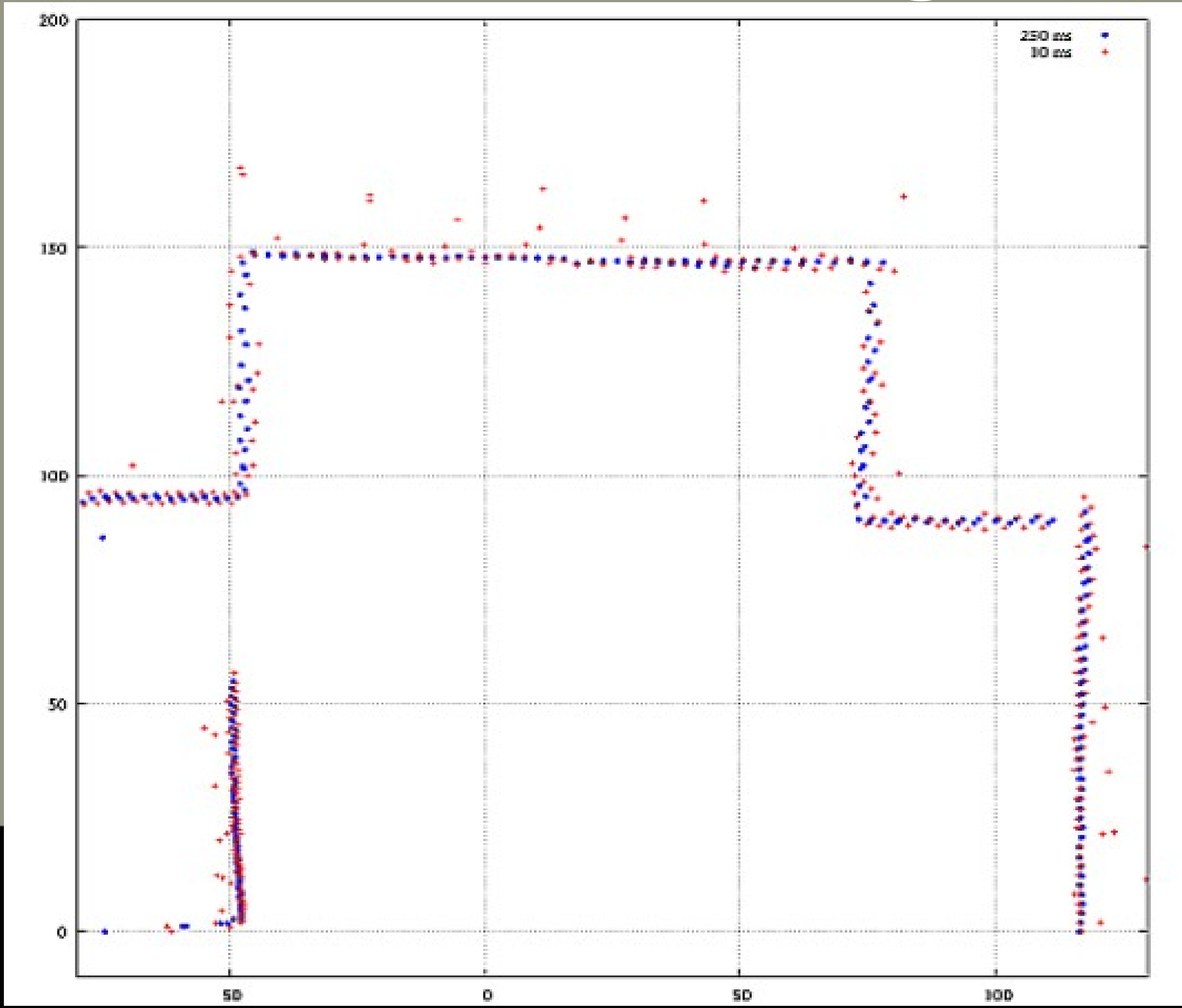
→ main limiting factor

Environment mapping



Environment mapping

Environment mapping



Results

sensor ILR 1030-8 (and simillar)

very promising sensor for robotics

the positioning head necessary

precise distance measurements

robust and reliable

low weight

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