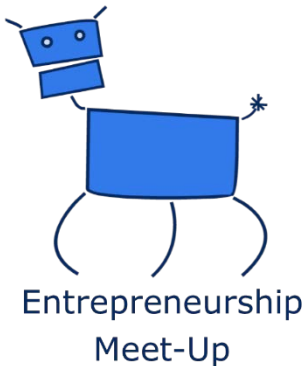


TRACI

Transportable Refrigeration Apparatus for CO₂ Investigation



CERN 27/05/2015

Our Team



Tomasz Szwarc

Master of Science -
Mechanics and Machine
Design



Kacper Kapusniak

Bachelor of Science -
Mechanics and Machine
Design



Maciej Ostrega

Master of Science -
Automatic Control and
Robotics



Michal Zimny

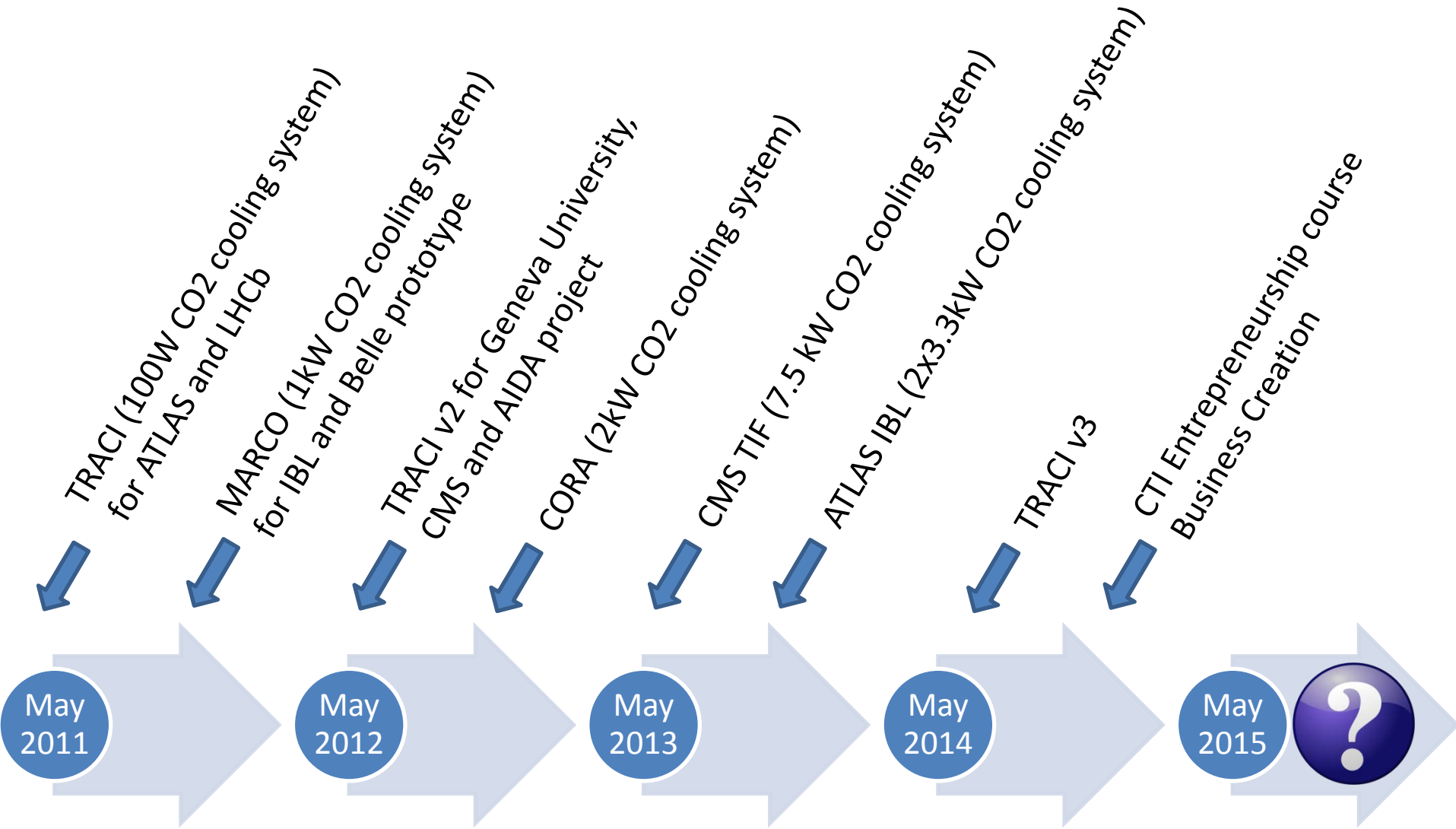
Bachelor of Science -
Automatic Control and
Robotics



Piotr Dziurdzia

Master of Science -
Mechanics and Machine
Design

Projects in which we have been involved before we decided to start our company:



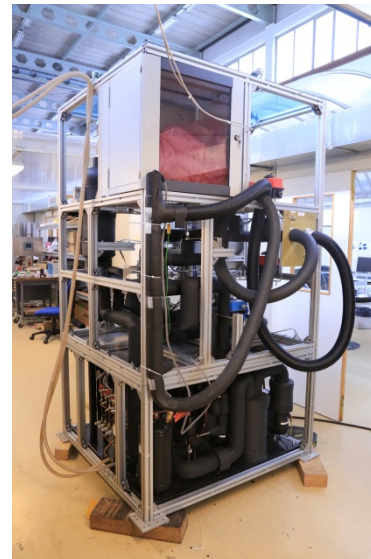
TRACI (100W CO₂ cooling system) for ATLAS and LHCb

- Electrical schematic
- Mechanical and electrical assembly
- NI LabView DAQ
- Commissioning, maintenance and development



MARCO (1kW CO₂ cooling system) for IBL and Belle prototype

- Electrical designing
- UNICOS PLC software and PVSS programming
- Commissioning and maintenance (technical support for DESY)



May
2011

May
2012

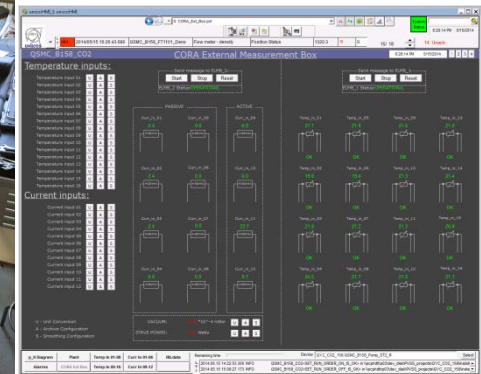
TRACI v2 for Geneva University, CMS and AIDA project

- Mechanical and electrical redesign
- Production, commissioning and maintenance



CORA (2kW CO2 cooling system)

- R404a chiller upgrade – control system for new compressor (7.5 kW)
- ELMB DAQ integration with PVSS
- Maintenance and development

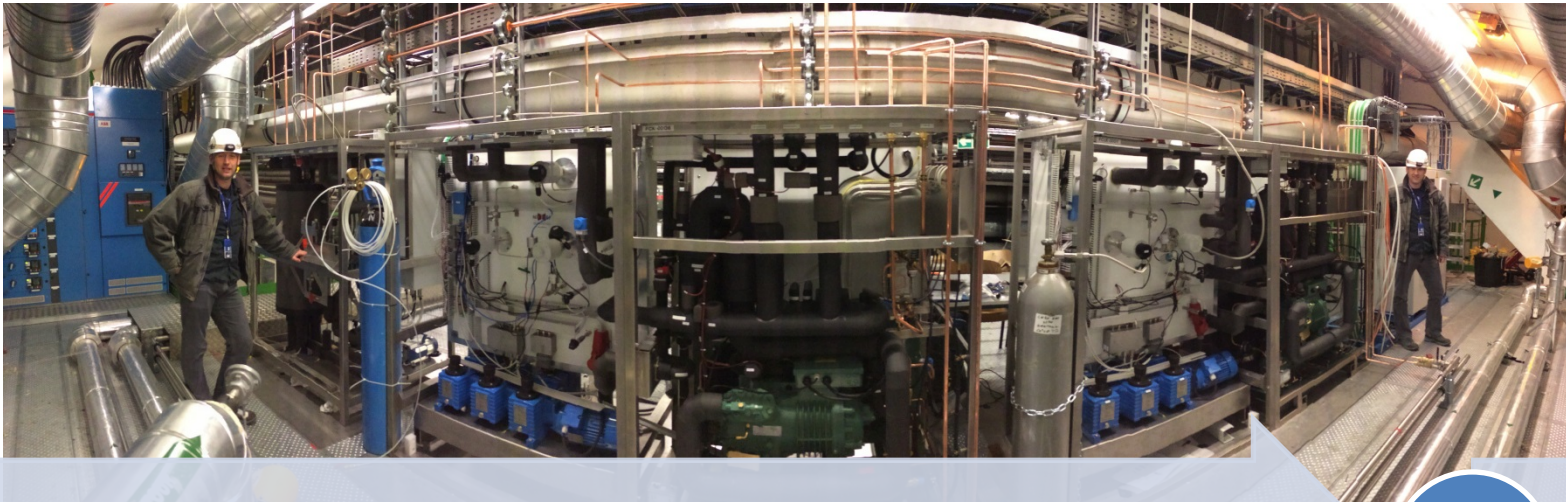


May
2012

May
2013

ATLAS IBL (2x3.3kW CO2 cooling system)

- Test of CO2 flexible vacuum insulated transfer line
- Vacuum control system
- Design and construction of IBL maintenance system
- Two R404a chillers control system
- PLCs and WinCC OA (PVSS) programming
- Commissioning and maintenance of the systems



May
2013

May
2014

TRACI v3

- New control system
- PLC and SCADA system
- Commissioning



CTI Entrepreneurship course Business Creation

- Product and service development
- Market analysis and competitive intelligence
- Marketing
- Intro to Business Plan
- Negotiation
- Sales

A CTI training programme



Start-up and entrepreneurship
CTI Entrepreneurship



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Confederation

Commission for Technology and Innovation CTI

May
2014

May
2015

TRACI



TRACI - Transportable Refrigeration Apparatus for CO₂ Investigation

- Significant reduction of the piping diameter
- Transportable device
- Very high heat transfer coefficient
- Oil free solution
- Non-flammable and non-conductive refrigerant
- Easy and precise regulation of the temperature on the Device Under Test (DUT)
- Temperature range: -40 °C to 20 °C
- Cooling power: 100 W @ -30 °C
- Long distance between DUT and cooling unit
- No risk of pollution in case of accidental leak
- Fast reaction to set-point changes

TRACI project issues

- Price
- Pump lifetime (under the investigation since 2011)
- Price
- Small market
- Price
- Lack of the legal support
- No funds for start-up...

Current project status

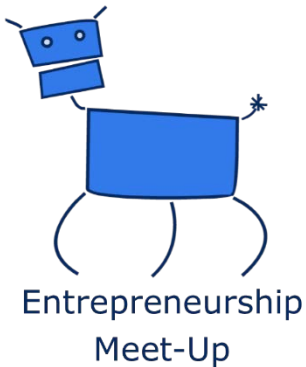
- TRACI v3 under the commissioning (CERN)
- Working on the biznes plan
- Market survey
- Preparing the TRACI for „serial” production
- Looking for a working place (TechnoPark FR)
- Looking for subcontractors

May
2015



TRACI project

Thank you for your attention!



CERN 27/05/2015