

TBG Solutions Ltd Knowledge Transfer Partnership



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TBG Solutions Ltd

TBG HQ

Barlborough
(Chesterfield)



TBG M

Cumbernauld
(Glasgow)



- ~ 30 total staff (SME)
- 2 Sites, Chesterfield and Glasgow
- 15+ Years Experience In Manufacturing

TBG Core Business

- Bespoke automated test systems
- National Instruments Gold Alliance Partner
- Design and manufacture of full turn-key measurement and control systems
- Business is good but R & D offers growth potential
- ISO 9001 Certified



TBG Research

- New building acquired Dec 2013
 - Building up project numbers and staff levels
- Grant applications to TSB, EIT, Horizon 2020
- Partnerships with universities, research institutions and end users
- Develop new products
- Grow the business



University collaboration: potential benefits

- **Benefits to TBG Solutions**
 - Access to innovative technology
 - Access to new markets
 - New products
- **Benefits to university**
 - Industrial (SME) partner for grant applications
 - Transfer of research output to marketable products
 - Royalties

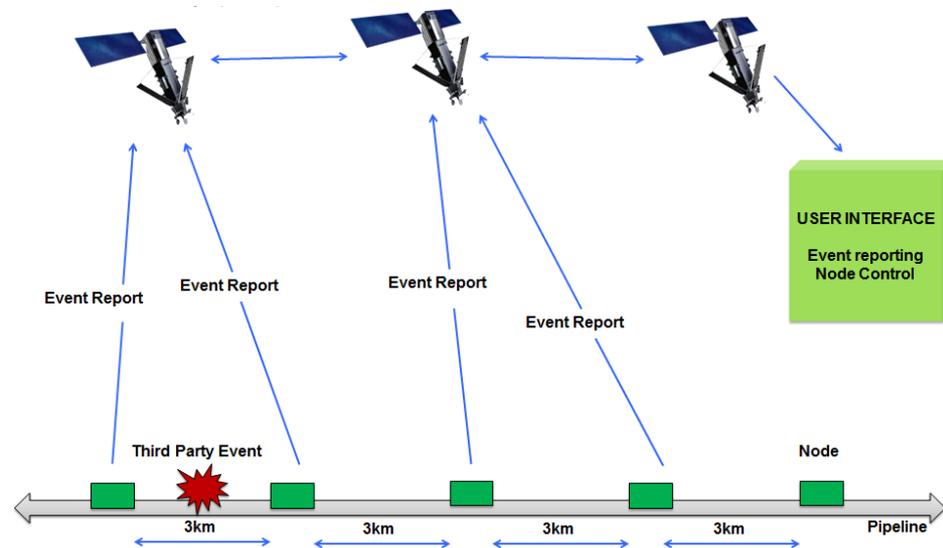
KTP Benefits to TBG

- Opportunity to run a new research and development project
- Skills input
 - Access to University expertise
 - Low risk recruitment
- Other University links
 - Clean Sky
- KTP Adviser
 - Advice
 - Contacts



Opportunity to run a new research and development project

- Manpower, university know-how and materials to develop a new product based around TBG core expertise



Skills input

- Recruit well-qualified engineer
 - Possibility to recruit permanently at the end of the project
- Access to university know-how
- Access to training (university and external)

Other University links

- Access to other contacts inside the university
- Example:
 - FP7 proposal under the ‘Clean Sky’ umbrella
 - New generation electric motor test for aircraft use
 - Joint application by TBG Solutions and electric motor experts from University of Manchester



KTP Advisers

- Extensive contacts in universities and industry
- Knowledge of business opportunities
- Personal development advice
- Technical know-how

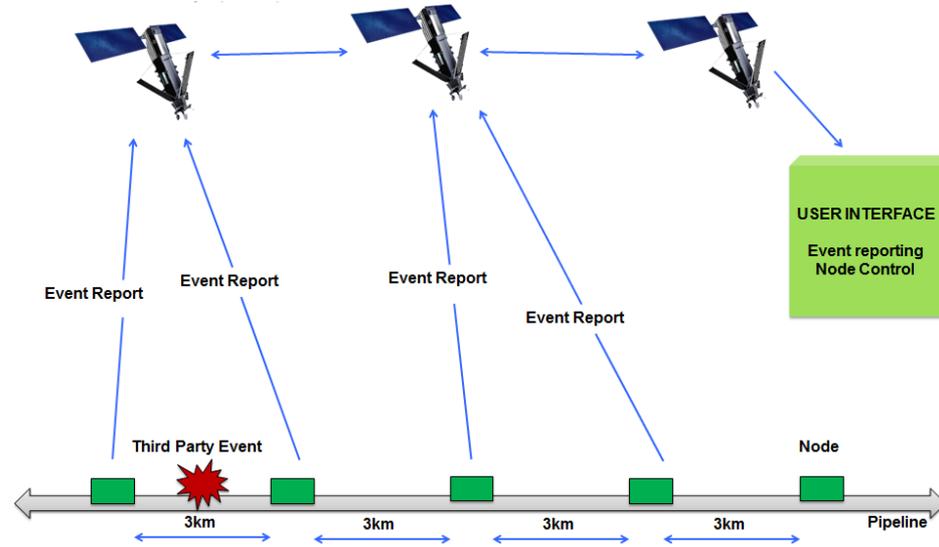


TBG's Motivation

- Successful business in bespoke test and measurement systems design and manufacture
- Wide range of skills
 - Software
 - Electronics design and manufacture
 - Electrical and pneumatic control design and manufacture
 - Mechanical design and manufacture
- Where next?
 - Research and Development to produce new products
 - Seek R & D collaborations with universities, research institutions and other companies
 - KTP is an ideal step

TBG's Current R & D projects

Pipeline Monitoring



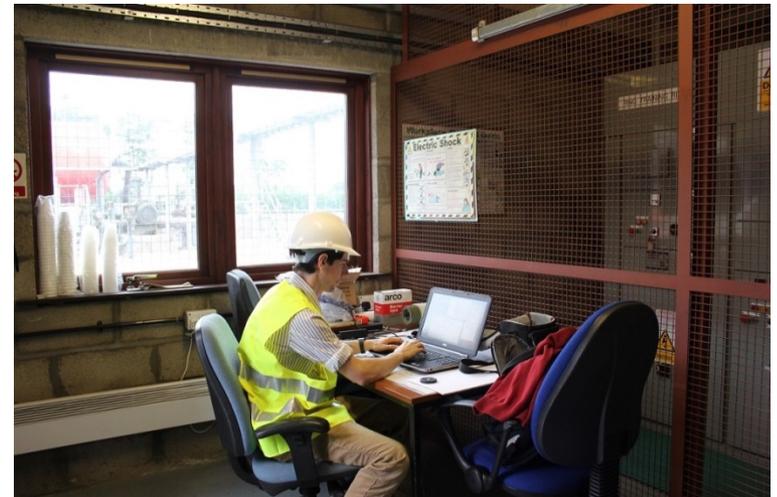
Wind Turbine Condition Monitoring

Active Noise Suppression on luxury yachts



Introduction

- Dr James Jacobs: KTP Associate
 - Background in research
 - PhD Sheffield University – Medical Imaging
 - KTP allowed step into industry
 - 18 months into 2 year KTP



Project overview



KTP Associate



MANCHESTER
1824

The University
of Manchester

System and software
engineering
Bespoke production test and
measurement solutions

Project management
System design
Business development
Product promotion

Antennas
Wireless Sensor Networks

KTP project
Pipeline Monitoring System

Oil theft in Nigeria

- 20% of Oil lost ^[1]
- \$150 million per day ^[2]
- Force Majeure in place ^[1]
- Environmental impact ^[3]
- Extracting oil from an active pipeline using hot-tapping techniques (bunkering)
- Often remain undiscovered ^[3]



[1] Reuters, "UPDATE 3-Shell can't say when will lift Nigeria force majeure," 23-Oct-2012. [Online]. Available: <http://uk.reuters.com/article/2012/10/23/nigeria-shell-idUKL5E8LN3XD20121023>. [Accessed: 30-Oct-2012].

[2] Reuters, "Nigeria oil theft crack-down," 2012. [Online]. Available: <http://uk.reuters.com/video/2012/05/29/nigeria-oil-theft-crack-down?videoId=235707608>. [Accessed: 30-Oct-2012].

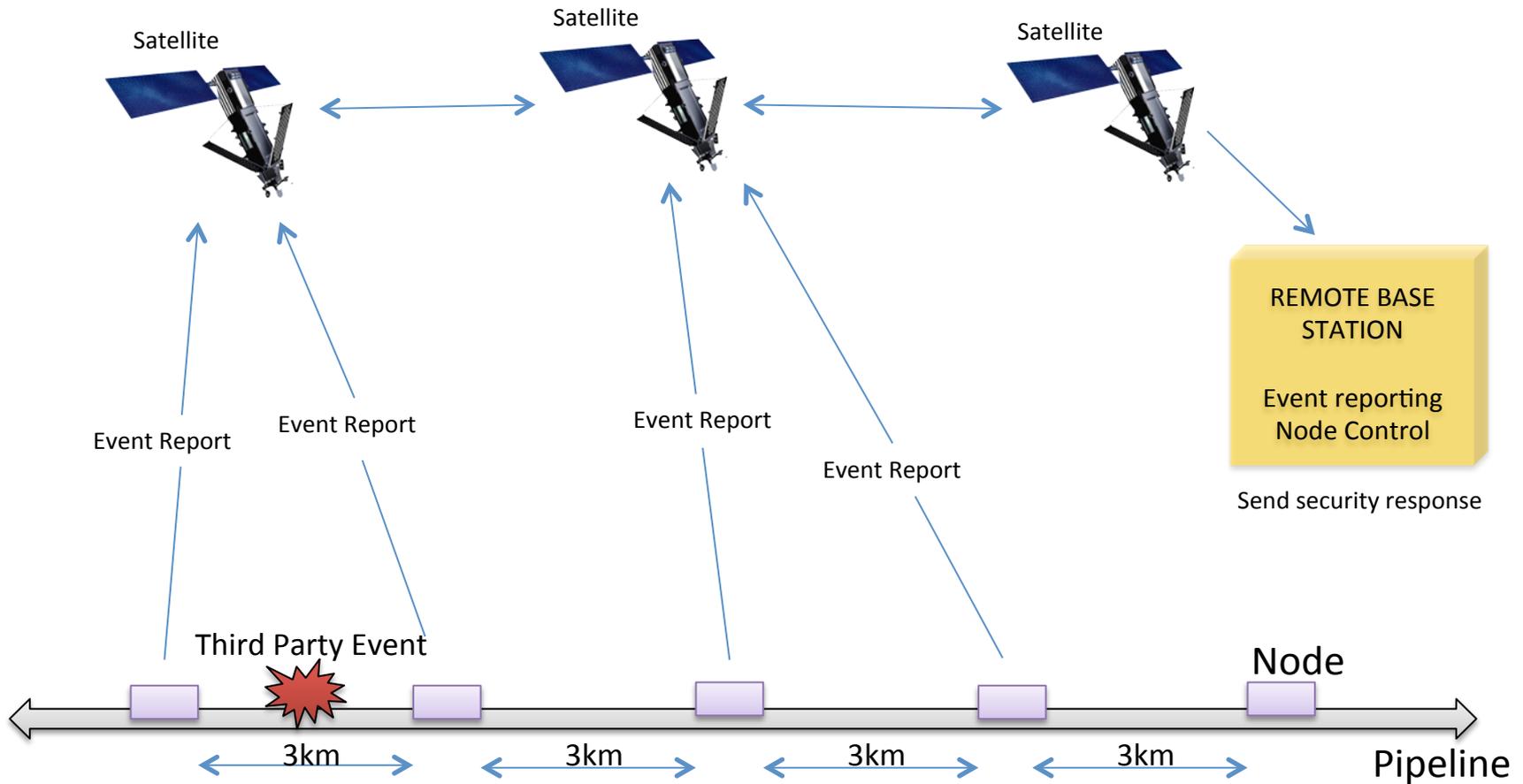
[3] BBC, "Nigeria oil spills: Shell rejects liability claim" 11-Oct-2012. [Online] <http://www.bbc.co.uk/news/world-africa-19905694> [Accessed: 30-Oct-2012]

Background & motivation

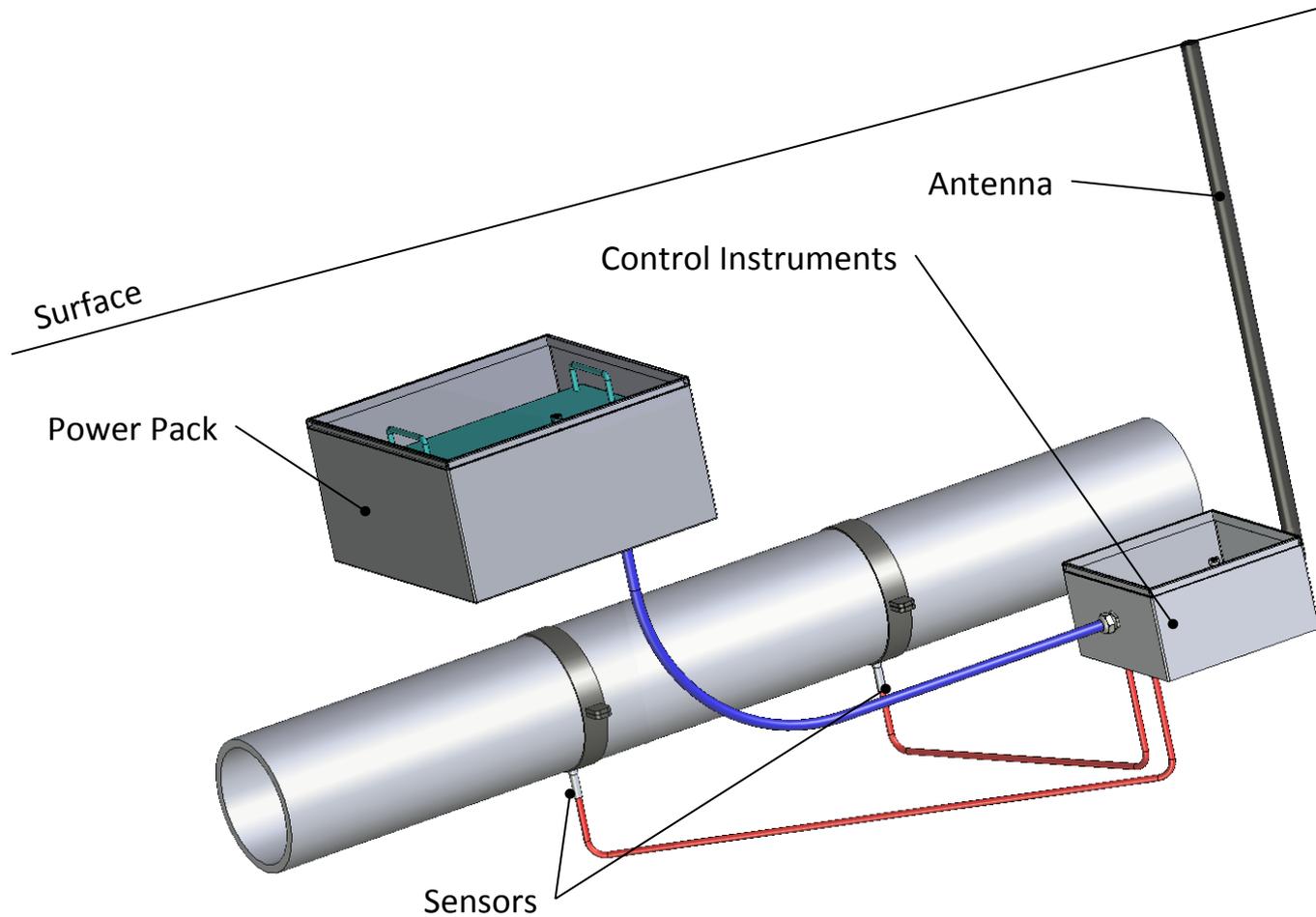
- TBG aware of problem through Nigerian contacts
- Sample data collected in Nigeria
- How to sell the concept?
- KTP
 - Create demo system
 - Prove the concept
 - Show to customers



Pipeline monitoring



Node design



Technical Challenges

- Satellite communication
- Recognition of events
- Covert system – to avoid discovery
- Battery life



Commercial Challenges

- Funding development
 - Seeking further funding for development
- Accessing markets
 - Offshore Europe tradeshow
 - Quotations to oil companies



How KTP advanced the project

- KTP brought to the project
 - Employee, University, Advisor
- KTP progress
 - Built a test system
 - Tests on UK pipeline
 - Proven concept
 - Quotes to Shell Nigeria
 - System modelling at Aberdeen University



Role of KTP Associate

- Knowledge Transfer
 - Spend time at TBG and UoM
 - Bring new skills to company
- Ownership of project
 - Project management
 - Strategic importance to TBG
 - Design and introduce a new direction
- Personal and professional development



Personal experience

- Involved in all aspects of a project
 - Project management
 - Responsibilities
 - Commercial/Sales
 - Technical aspects
 - Influence outcomes
- More rapid and varied than my other options

Personal benefits

- Training + Personal Development
- University and industry experience
- New skills
 - Many aspects to the project
 - Responsibility
 - Commercial experience
 - Working at a SME
 - Developing Contacts
- KTP advisor
 - Personal guidance, develop as an engineer



Recommend/again?

- Excellent opportunity for a graduate
- Shape a innovative project
- Responsibility
- Gained training
- Using resources at the university
- Integral part of TBG's plans
 - Job offer received



Future plans

- Employment at TBG
- Continue pipeline project
- Develop R&D business
- Growing responsibility
- TBG pursue more grant funded research
 - KTP, SMART, TSB applications
- Collaborate with universities and research institutions



Summary and Conclusions

- KTP has been a success for TBG Solutions
 - New engineer
 - New skills
 - New product
 - Fruitful relationship with University of Manchester
 - We hope to do more KTPs
- KTP has been a success for the associate
 - New technical skills, industrial experience
 - Developed business and commercial skills
 - Training opportunities
 - Job offer

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