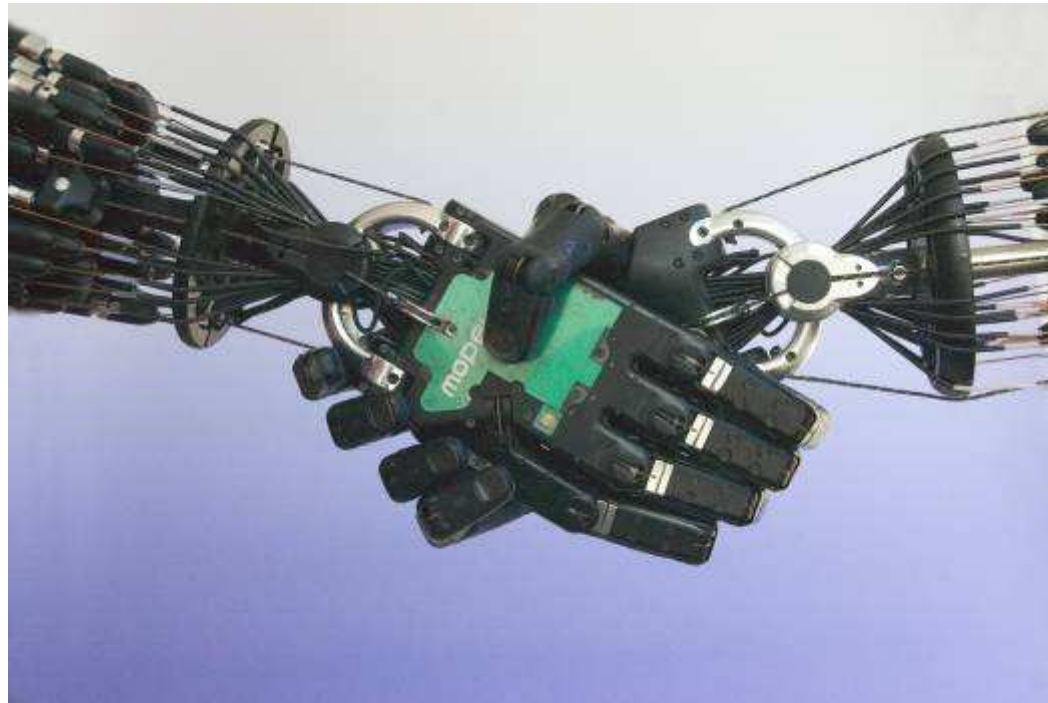


FP7 SME Experience



Rich Walker
Director
rw@shadowrobot.com



Who are Shadow?



1987 – Richard Greenhill and friends decide to start building robots

1997 – Shadow Robot Company set up

1998 – Smart Award (£45k, 75%)

2001 – NESTA Invention & Innovation Award (£50k->£75k, 100%)

2004 – CLAWAR FP5/FP6 Thematic Network (EUR7k, 100%)

2005-2008 – String of FP6/FP7 applications

2008 – IP HANDLE, R4SME PV-S funded (EUR 600k, 75%

EUR 100k, 80%)

2009 – STREP TACO funded (EUR 100k, 75%)

2010 – Let's put something in!



The Shadow Biped



20 years ago, a group of people driven by the visions of SF decided to start building the General Purpose Robot that the future had been promising for as long as any of us could remember.

This is the result.

1987-1995: The Shadow Biped

14 movements

Air Muscle actuation

Stood up using Fuzzy Logic, and the Alexander Technique.



Air Muscle



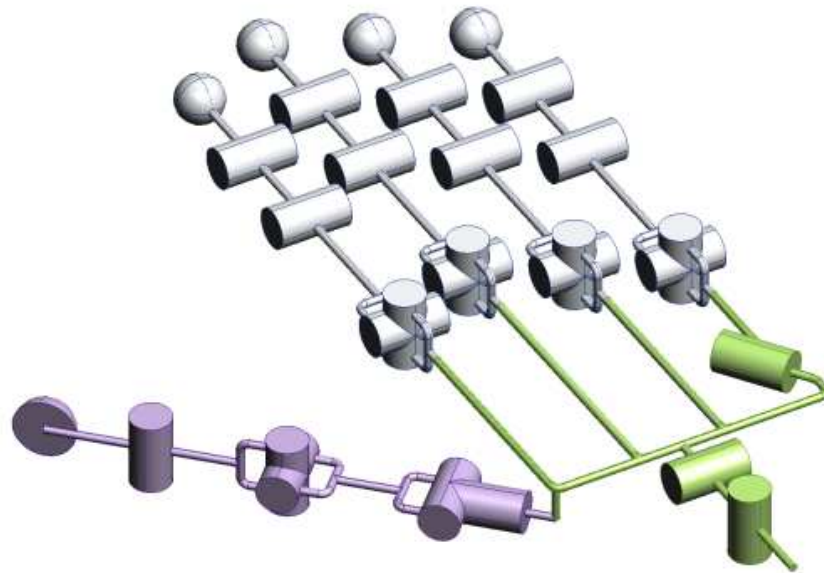
- Compact
- Flexible
- Lightweight
- High Power
- Soft and Safe
- Just Plain Weird



Dextrous Hand



Ultimate challenge in robotics
24 movements
Most complex bit of the human body
Sensitivity
Precision
Softness



Technologies needed



Denser **power** sources
Small robust accurate **position sensors**
Higher power-to-weight ratio **actuation**
3-6 Axis **Force/torque** sensing
Accelerometers and **Inclinometers**
Embeddable **3d vision** systems
High resolution, high precision **tactile sensing**
Software. Lots and lots of software!
Very small buffered **strain gauges**
Motor/Valve **drive units**
Amplified **pressure sensors**

Robot Components always need to be:

- Smaller
- Lighter
- More versatile
- More robust
- More precise
- Lower cost

General purpose robots – higher volumes, specialised components, more redesign for manufacture, long design times

Special purpose robots – low volumes, high margins, standard parts (needed yesterday!)
no redesign for manufacture, short design times



Types of Successful Proposals



Because You Asked – approached by a consortium with a clear idea who need a partner offering what we have (TACO)

Because We Want To – form a consortium based around your own development roadmap – and get someone else to front it (HANDLE)

Because We Can – spot a market opportunity you wouldn't normally go for, and persuade the EC to fund the development (PV-S)

Getting the Proposal Right



Have a **named responsible person** in each organisation.

Have a regular teleconference and a **working mailing list**.

Don't spend money on writing the proposal!

Make sure there's a **real reason** for each partner.

Make sure you actually **fit the call**.

That **5pm deadline**? It's firm. Really firm. And it's Brussels time.

Pitfalls!



The partners who are too busy to work on the proposal – they won't get any less busy!

Appalling failure rates.

100 page documents in EUglish.

Verification, validation and Audit.

Did I say Audit?

Living on Eurostar.

Trying to organise 4 meetings a year with 15 people from 8 countries.

Holding on to the Advance and other aspects of the finances.

Benefits



Network all over Europe.

Get funded to do something you wanted to do, with people you wanted to work with.

Contacts and connections.

Opportunity to influence future direction of EU. (Technology Platforms)

160% of annual funding in the first year.

You **have** to work with the best people in Europe.

Your idea has been shown to be a good one by getting through the rigorous assessment process.