

Open Innovation Projects - entries in the energy category

Website's content (partial) in one document and extrapolation of OIP's categorization to projects not listed by OIP

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1 Introduction

open-innovation-projects.org (*OIP* in the text following) lists mostly OSHW projects and systematically categorizes them. Out of the ~150 listed entries, 109 retained our attention. Out of those 109, the following 6 are directly in relation with the OSHWL field *energy* (table 1):

title	OSHWL path	keywords from OIP
3G Stoves	energy/thermal/stoves	stove, 3g, woodgas, tlud, biomass
Absorber Roof	energy/solar/thermal	solar, thermal, collector, roof, intergrated
Canuckle LEDlights (CLED)	energy/light	solar, energy, green, DIY, alternative, sun, heating, electricity, solar cooking, solar concentration, heliostat
OS BHKW	energy/thermal/cogen	-
Solar Cooking Archive (SCA)	energy/solar/thermal	-
solar tracking	energy/solar/tracking	-

Tab. 1: OIP entries treated by OSHWL, directly in relation with the OSHWL field *energy*

We will also apply the same “standardized” categorization effort to the following OSHWL *energy* projects, not listed by OIP (table 2):

title	OSHWL path	keywords
<i>Global Anchor</i>	energy/hydro	
<i>SolarFire</i>	energy/solar/thermal	
<i>SolarFlower</i>	energy/solar/thermal	

Tab. 2: other OSHWL projects categorized according to OIP’s method

To that we will add 16 more of the 109 OIP entries which were interesting to us. Those 16 seem *indirectly* in relation with the OSHWL field *energy* (table 3):

title	OSHWL path	keywords from OIP
Arduino	electro-it-monit	-
AVR Butterfly Logger (AVR BL)	electro-it-monit	datalogger, logging, logger
Balloon	electro-it-monit	-
Beagle Board	electro-it-monit	omap3, linux, open hardware
Ben NanoNote	electro-it-monit	copyleft hardware, open source, openwrt
Ethernut	electro-it-monit	-
Etherrape	electro-it-monit	-
Flash-Plaice	electro-it-monit	-
Freeduino	electro-it-monit	-
Gumstix	electro-it-monit	-
openenergymonitor	electro-it-monit	energy monitor, power meter, renewable energy
OpenRemote	electro-it-monit	-
OpenServo	robo-manuf	-
OpenWrt	electro-it-monit	-
Sanguino	electro-it-monit	microcontroller, board
SquidBee	electro-it-monit	-

Tab. 3: OIP entries treated by OSHWL, *indirectly* in relation with the OSHWL field *energy*

The following is the categorization itself (in tables making overview and comparison easy, as opposed to individual project sheets as is the case on open-innovation-projects.org), copied from OIP for the projects they list and complemented with the projects from table 2.

There are three groups of criteria:

- project details
- product details
- institutional design and production

2 Project details

First, a description of the categories in the tables directly following.

project type

single project one or more specific product(s) is/are shown and/or developed

collection of projects overview over several different projects or product, e.g. OIP itself

development Status current stage of development according to the following:

- 1 planning/virtual development - ideas and digital dev. evolving
- 2 prototyping started - first physical proto. assembled, testing phase
- 3 first working proto. - working proto. available, release to community, further dev. needed
- 4 production stable - fully functional product permanently available on market, further dev. possible
- 5 mature - final dev. stage reached, no further dev. necessary

Inactive dev. stopped, no final product available

in case several products are being developed, the stage of the most advanced product is indicated.

license and trademark

- whether the project is using an open license and of which type
- whether they have a registered trademark

country main location, i.e. home country of the project leader, the core team or the office location.

start year year in which the project was initiated.

Tables

title	entry type		dev. status	licence (and TM)							country	start year
	collection of projects	single project		GPL, LGPL or similar copyleft	BSD, MIT or similar permissive	Creative Commons	other open	commercial	no license	registered trademark		
3G Stoves	x		3					x		x	IN	2008
Absorber Roof		x	3	-	-	-	-	-	-	-	-	-
CLED		x	3								CA	2008
OS BHKW	-	-	2						x		D	2006
SCA		x	4			x					-	-
solar tracking		x	3						x		CA	2008
<i>Global Anchor</i>												
<i>SolarFire</i>												
<i>SolarFlower</i>												
Arduino		x	5	x		x				x	IT	2005
AVR BL		x	3		x						UK	2003
Balloon		x	3				x				-	1999
Beagle Board		x	4	x		x			x (?)		US	2007
Ben NanoNote	x		4	x		x				x	HK	2009
Ethernut	x		4		x						D	2001
Etherrape		x	3	-	-	-	-	-	-	-	-	2006
Flash-Plaice		x	1	x							-	2007
Freeduino		x	3			x					-	-
Gumstix		x	4			x				x	US	2003
openenergymonitor		x	3	x							UK	2009
OpenRemote		x	3			x				x	-	2008
OpenServo		x	3		x						-	-
OpenWrt		x	4	x							-	-
Sanguino		x	3			x					US	2008
SquidBee		x	4			x				x	E	-

Tab. 4: project details

3 Product details

First, a description of the categories in the tables directly following.

product innovativeness degree of innovativeness according to the following criteria:

- 5 radical innovation - a new technology that results in a new market infrastructure, e.g. an innovation which does not address a recognized demand but instead creates a demand previously unrecognized by the consumer
- 4 really new innovation - a really new product results in a market discontinuity or a technological discontinuity but will not incorporate both, e.g., new product lines, product line extensions with new technology, or new markets with existing technology
- 3 discontinuous innovations - new technologies that don't lead to discontinuity in existing markets
- 2 incremental innovations - products that provide new features, benefits, or improvements to the existing technology in the existing market
- 1 imitative innovations - imitative products are frequently new to the firm, but not new to the market

product complexity degree of complexity for the developed product ranging between the following:

- 1 low complexity, e.g. a simple wooden chair
- ...
- 5 high complexity, e.g. an aircraft or a nuclear power plant

Tables

title	innovativeness	complexity
3G Stoves	5	2
Absorber Roof	3	3
CLED	5	1
OS BHKW	2	4
SCA	-	-
solar tracking	5	1
<i>Global Anchor</i>		
<i>SolarFire</i>		
<i>SolarFlower</i>		
Arduino	2	3
AVR BL	3	2
Balloon	2	2
Beagle Board	4	3
Ben NanoNote	2	4
Ethernut	2	3
Etherrape	-	-
Flash-Plaice	3	2
Freeduino	2	3
Gumstix	4	3
openenergymonitor	3	2
OpenRemote	3	2
OpenServo	4	4
OpenWrt	2	1
Sanguino	2	3
SquidBee	5	3

Tab. 5: product details

4 Institutional design and production

First, a description of the categories in the table directly following.

contribution

user whether private persons or users are actively involved in the development.

commercial whether commercial companies are actively involved in the development.

research whether research institutions are actively involved in the development.

type of collaboration

collective development of...

one common product if a community is commonly developing one product.

several common products if a community is commonly developing several different products.

published knowledge...

with some coll. dev. if instructions or ideas are published and others make comments and suggestions.

without collective dev. if information is purely revealed.

degree of openness (radicalized from OIP's version) / entirety of openness Whether or not the project is revealing all available information.

production entity responsible for production. "related company or assoc." refers to an entity closely related to the project or with a production mandate. "outsourced" is whenever an external party is paid for supplying components.

Tables

title	contribution			type of collab.				entirety of openness	product produced by							
	user/private	commercial	research	collective development of one common product	collective development of several common products	published knowledge w/ collective development	published knowledge w/o collective development		project leader	core team	developer community	user community	related company or association	outsourced	other	not yet clear
3G Stoves	x		x			x			x			x				
Absorber Roof	x					x			x							
CLED	x						x	x								x
OS BHKW	-	-	-	-	-	-	-	x	-	-	-	-	-	-	-	-
SCA	x				x			x			x	x				
solar tracking	x					x		x								
<i>Global Anchor</i>																
<i>SolarFire</i>																
<i>SolarFlower</i>																
Arduino	x				x					x	x		x			
AVR BL	x				x			x	x							x
Balloon	x	x	x		x								x			
Beagle Board	x	x			x			x					x			
Ben NanoNote	x	x	x		x					x			x			
Ethernut	x	x	x		x								x			
Etherrape	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Flash-Plaice	x	x			x					x						
Freeduino	x				x			x					x			
Gumstix	x	x			x								x			
openenergymonitor	x					x		x	x							
OpenRemote	x	x			x											x
OpenServo	x	x			x			x					x			
OpenWrt	x				x				-	-	-	-	-	-	-	-
Sanguino	x					x		x	x				x			
SquidBee	x	x	x		x			x					x			

Tab. 6: institutional design and production details