



Raspberry PI

dalla radio pirata al Digital Audio Broadcasting





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dalla radio pirata al Digital Audio Broadcasting



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IT Manager Galileo Soc. Coop.

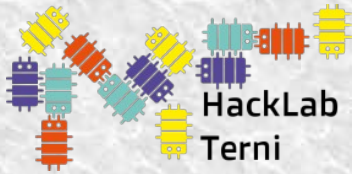
HackLab Terni

<http://hacklabterni.org/>

Terni GNU-LinuxUserGroup

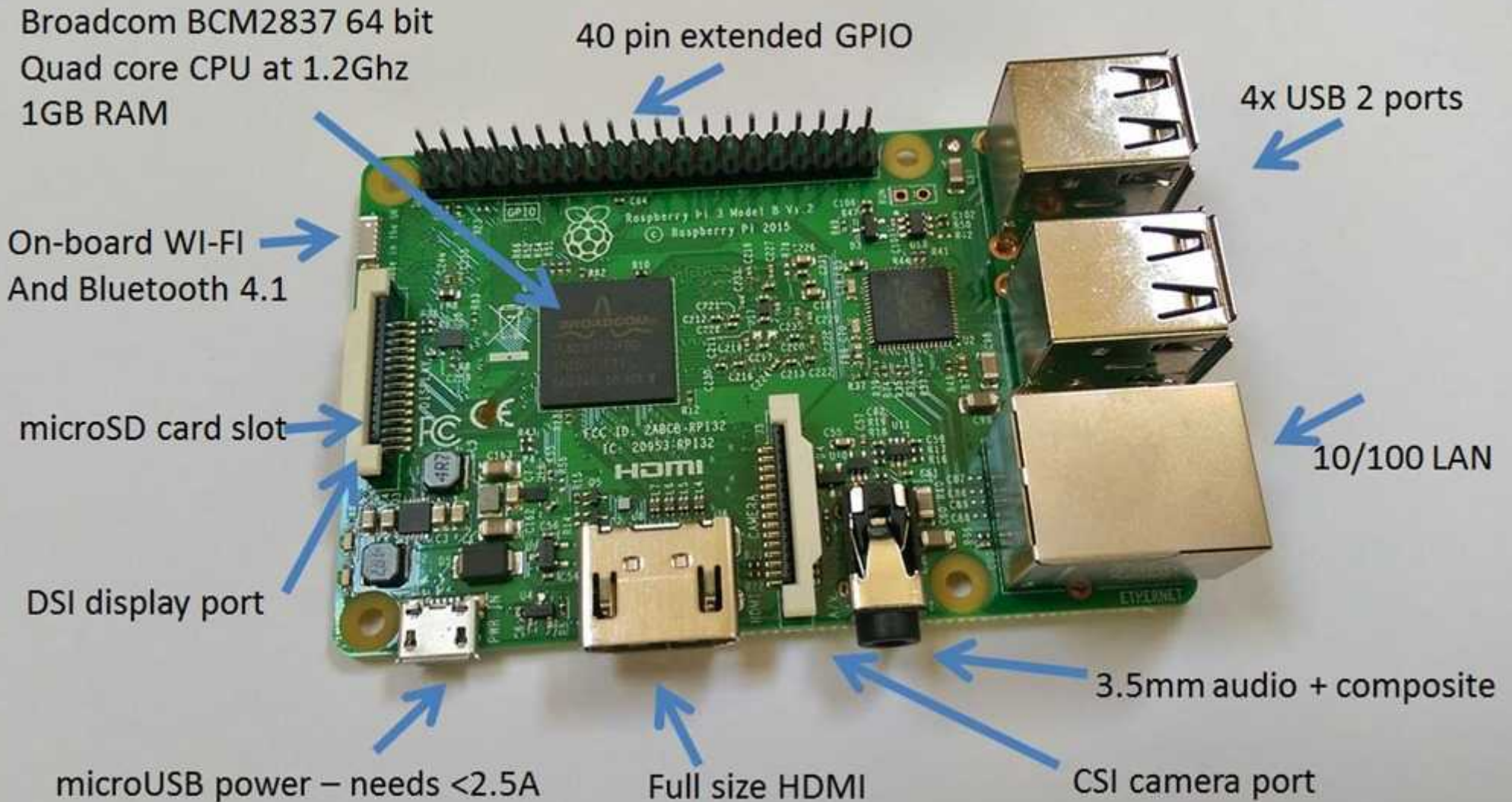
<http://www.ternignulug.org/>

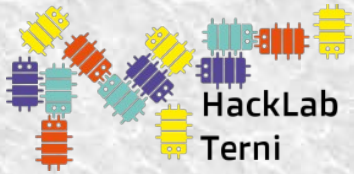
Email: AllegFede@gmail.com



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Raspberry PI

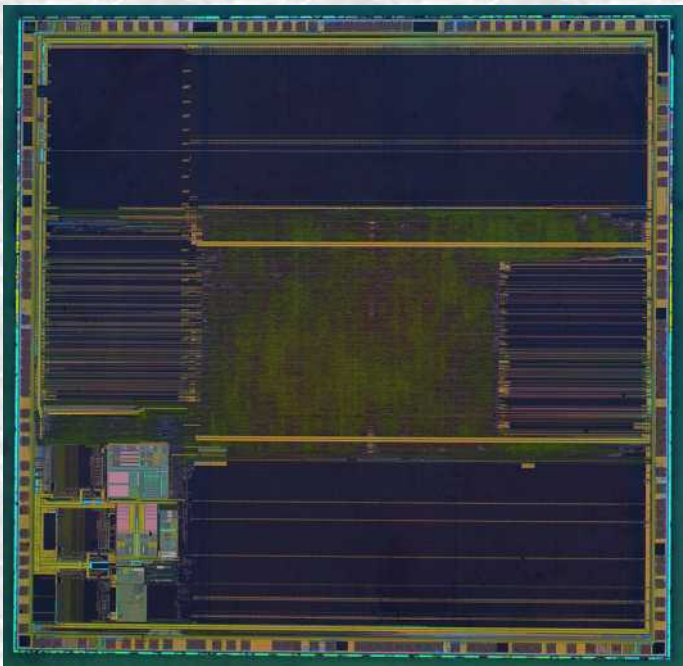
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iPhone



iPhone 3G



iPhone 3G S



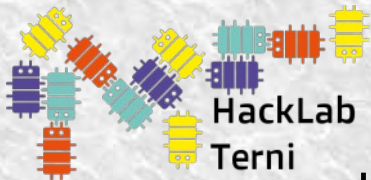
iPhone 4



iPhone 4S



iPhone 5



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Primi anni 80

Progettato e costruito da Acorn
Computers per
British Broadcasting Corporation
(BBC)

BBC Computer Literacy Project
BBC per l'alfabetizzazione
informatica



Commercializzazione: 1º dicembre 1981

Prezzo di lancio: 235 GBP per il "Model A", 335 GBP per il "Model B"

CPU: MOS 6502

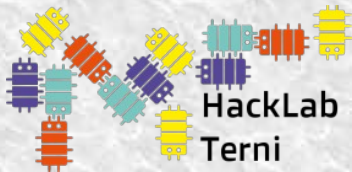
Frequenza: 2 MHz

ROM: 32 kB

RAM di serie: 16 kB

RAM massima: 64 kB

SO di serie



Raspberry Pi

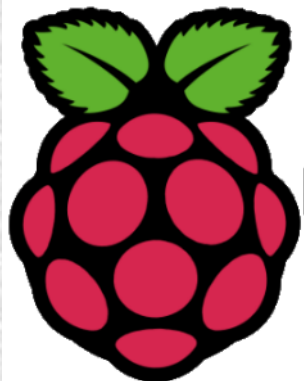
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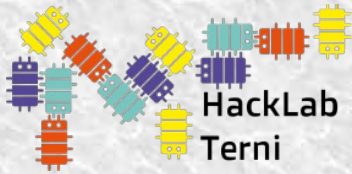


Raspberry Pi Foundation

- Sviluppo del dispositivo da parte della Raspberry Pi Foundation, organizzazione di beneficenza registrata presso la **Charity Commission for England and Wales**.
- "promuovere lo studio dell'informatica e di argomenti correlati, soprattutto a livello scolastico, e di riportare uno spirito di divertimento nell'apprendimento del computer"
- La fondazione Raspberry Pi promuoverà principalmente l'apprendimento nel linguaggio di programmazione Python, ma sosterrà anche l'uso del BBC BASIC, del C e del Perl.

Grazie al suo design, supporta molti altri linguaggi implementati da **Linux e ARM**.





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GPIO Numbers

Raspberry Pi B
Rev 1 P1 GPIO Header

Pin No.		
3.3V	1	2
5V		
GPIO0	3	4
5V		
GPIO1	5	6
GND		
GPIO4	7	8
GPIO14		
GND	9	10
GPIO15		
GPIO17	11	12
GPIO18		
GPIO21	13	14
GND		
GPIO22	15	16
GPIO23		
3.3V	17	18
GPIO24		
GPIO10	19	20
GND		
GPIO9	21	22
GPIO25		
GPIO11	23	24
GPIO8		
GND	25	26
GPIO7		

Raspberry Pi A/B
Rev 2 P1 GPIO Header

Pin No.		
3.3V	1	2
5V		
GPIO2	3	4
5V		
GPIO3	5	6
GND		
GPIO4	7	8
GPIO14		
GND	9	10
GPIO15		
GPIO17	11	12
GPIO18		
GPIO27	13	14
GND		
GPIO22	15	16
GPIO23		
3.3V	17	18
GPIO24		
GPIO10	19	20
GND		
GPIO9	21	22
GPIO25		
GPIO11	23	24
GPIO8		
GND	25	26
GPIO7		

Raspberry Pi B+
B+ J8 GPIO Header

Pin No.		
3.3V	1	2
5V		
GPIO2	3	4
5V		
GPIO3	5	6
GND		
GPIO4	7	8
GPIO14		
GND	9	10
GPIO15		
GPIO17	11	12
GPIO18		
GPIO27	13	14
GND		
GPIO22	15	16
GPIO23		
3.3V	17	18
GPIO24		
GPIO10	19	20
GND		
GPIO9	21	22
GPIO25		
GPIO11	23	24
GPIO8		
GND	25	26
GPIO7		
DNC	27	28
DNC		
GPIO5	29	30
GND		
GPIO6	31	32
GPIO12		
GND	33	34
GPIO13		
GPIO19	35	36
GPIO16		
GPIO26	37	38
GPIO20		
GND	39	40
GPIO21		

GPIO are ONLY
DIGITAL !!!!
No analog i/o pin

Key

Power +	UART
GND	SPI
I ² C	GPIO



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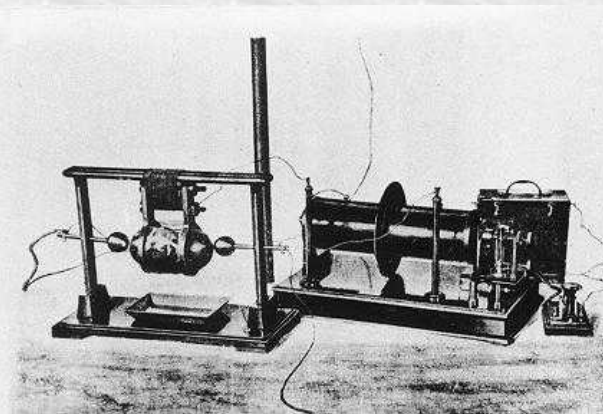
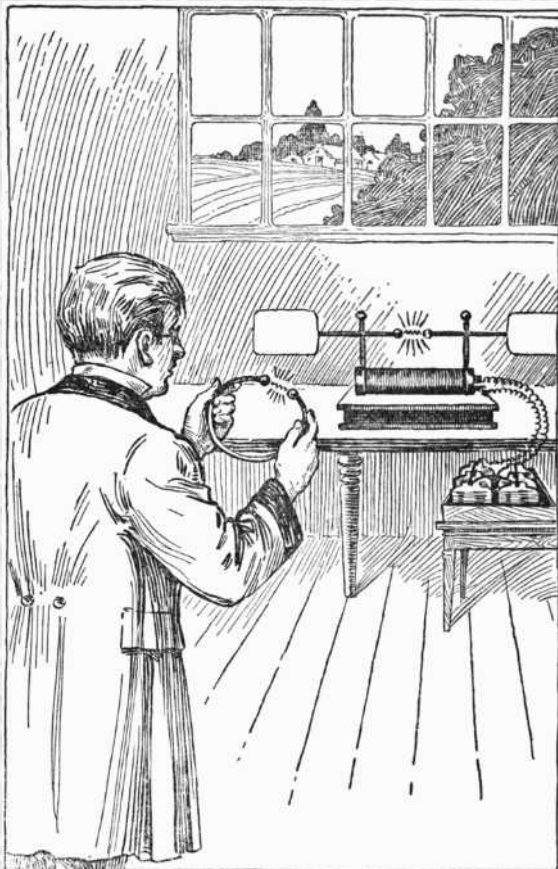
Prestazioni GPIO

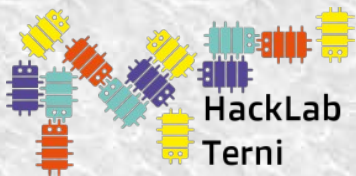
Language	Library	Pi 1	Pi 2	Change
Shell	/proc/mem access	2.8 kHz	7.0 kHz	2,5x
Shell / wiringPi	WiringPi gpio utility	40 Hz	95 Hz	2,4x
Python	RPi.GPIO	70 kHz	243 kHz	2,5x
Python	WiringPi2 bindings	28 kHz	103 kHz	3,7x
Ruby	WiringPi bindings	21 kHz	N/A	
C	Native library	22 MHz	41.7 MHz	1,9x
C	BCM2835	5.4 MHz	7.2 MHz	1,3x
C	WiringPi normal GPIO wiringPiSetup()	4.1 MHz	9.3 MHz	2,3x
C	WiringPi GPIO wiringPiSetupGpio()	4.6 MHz	9.4 MHz	2x
C	WiringPi sys wiringPiSetupSys()	120 kHz	185 kHz	1.5x
Ruby	BCM2835	48 kHz	154 kHz	3.2x

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l'origine





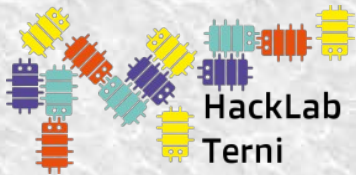
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Le RADIO PIRATA





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L' anomalia italiana, le "Radio Libere"

Sentenza 202 della Corte
Costituzionale del 28 luglio
1976



rappresenta oltre 500
radio locali italiane



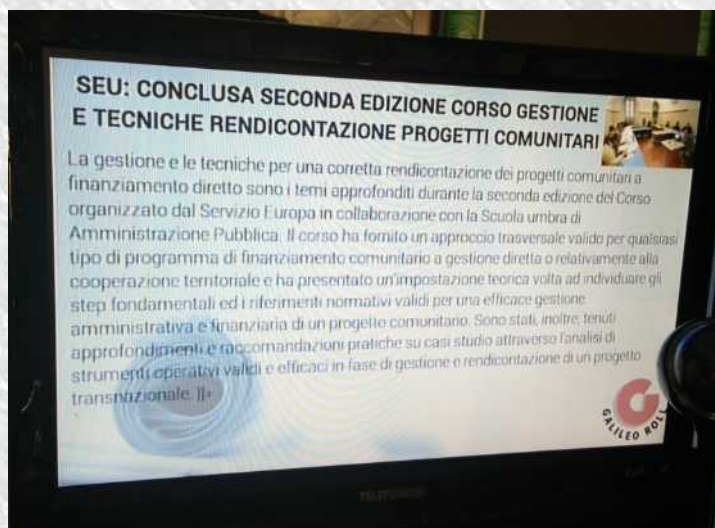


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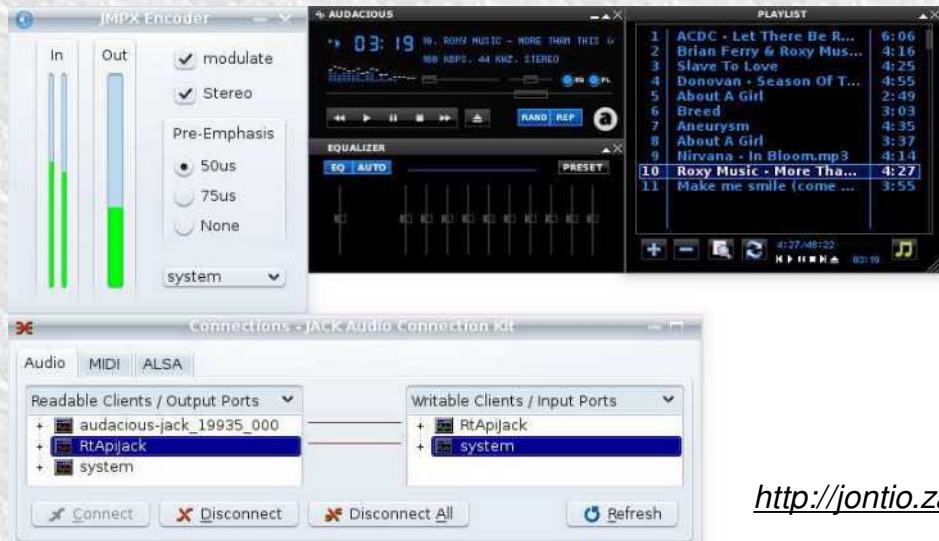
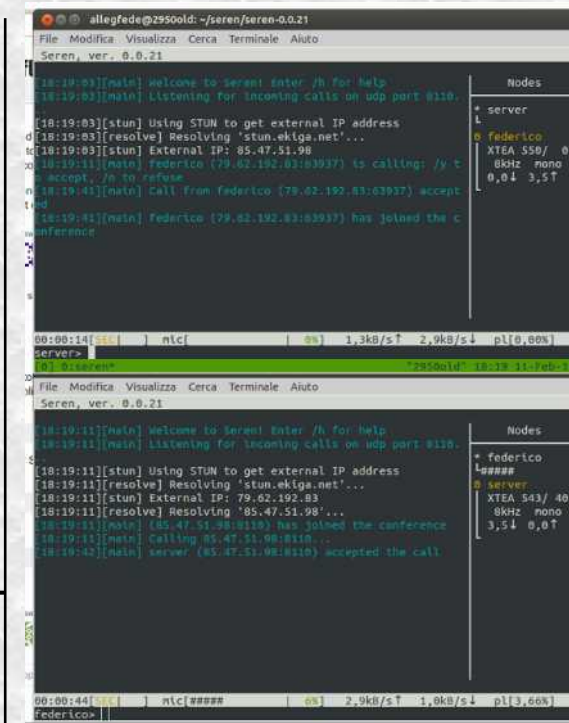
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ALCUNI DEI MIEI



PROGETTO OTVA
Ricezione delle informazioni (testo della notizia e foto) attraverso feed RSS e rendering a schermo. Realizzato in GAMBAS utilizza l'uscita video composita del PI2. In background riproduce audio con mplayer

<https://sourceforge.net/projects/otva/>



Gateway IP to FM

Ricezione audio via internet. Generazione in logo di Stereofonia e RDS. Utilizza Raspberry PI 2 e scheda audio a 192KHz

<http://jontio.zapto.org/hda1/paradise/jmpxencoder/jmpx.html>

LINK audio HI-FI

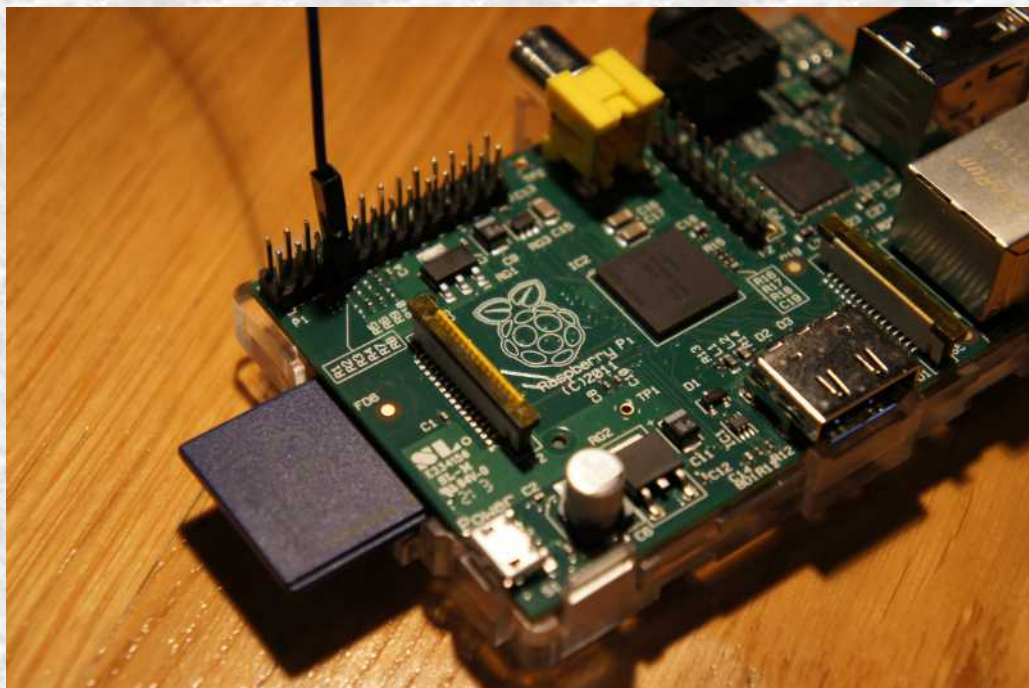
Interconnessione audio ad alta fedeltà e bassa latenza per corrispondenze ed eventi (RADIO).

Utilizza Raspberry Pi2 scheda audio USB e SerenVoip (basato su codec opus)

Raspberry PI

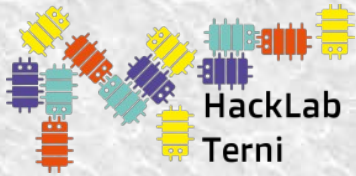
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Radiofonia e Raspberry PI



<https://github.com/ChristopheJacquet/PiFmRds>





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IP2FM Gateway



<http://jontio.zapto.org/hda1/paradise/jmpxencoder/jmpx.html>

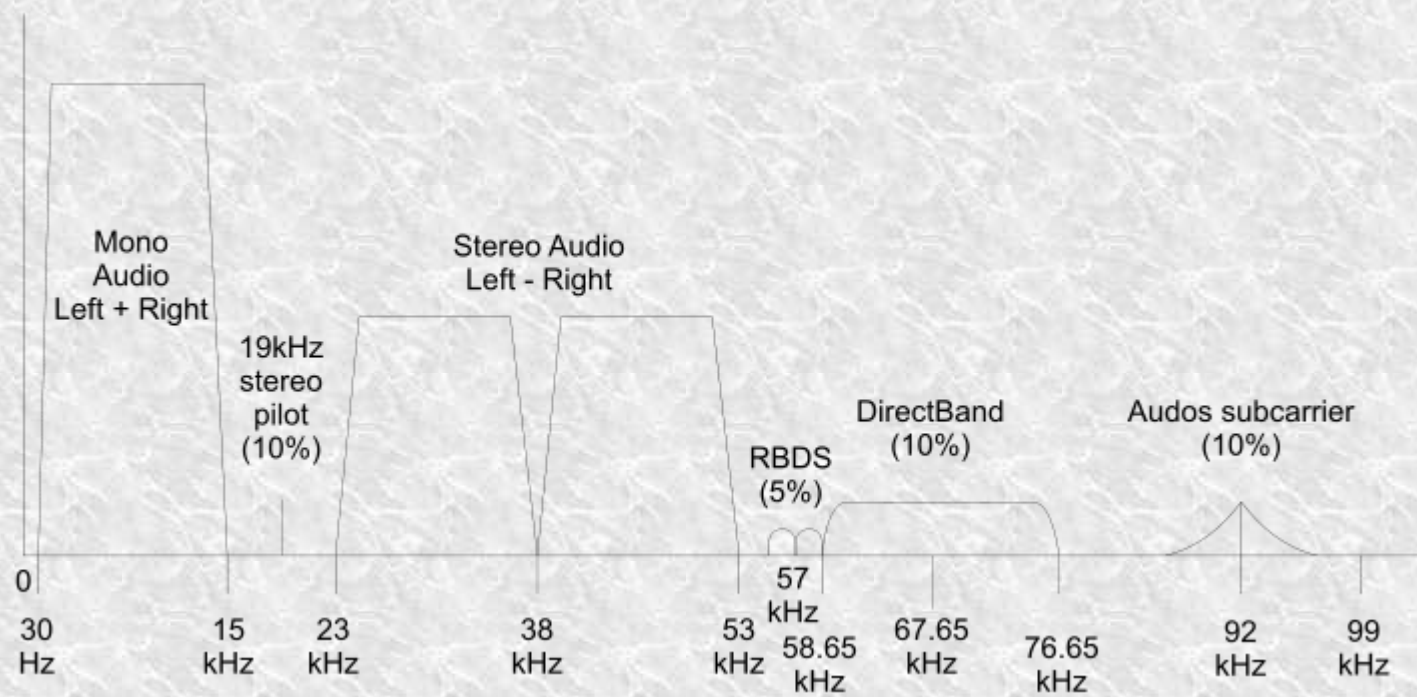


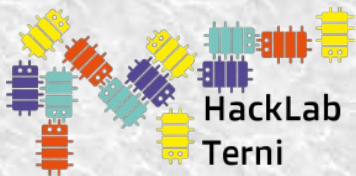
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IP2FM Gateway



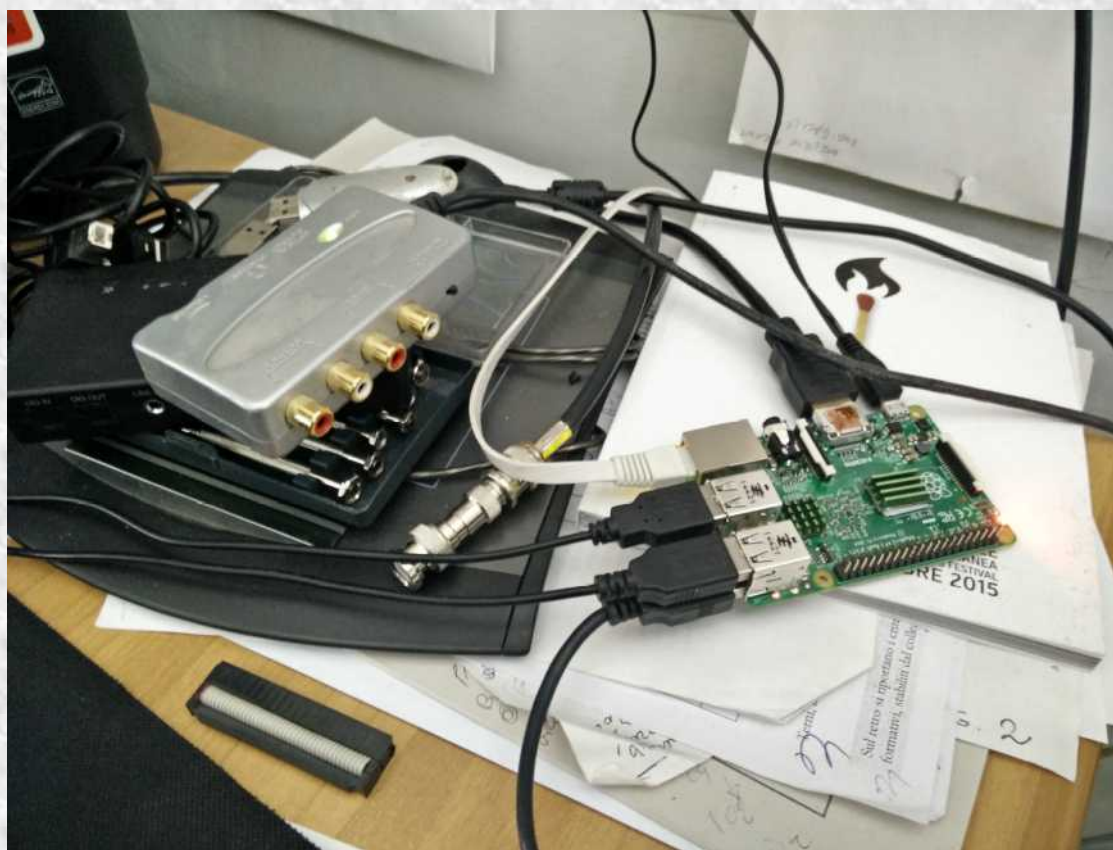


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DAB+ Encoder

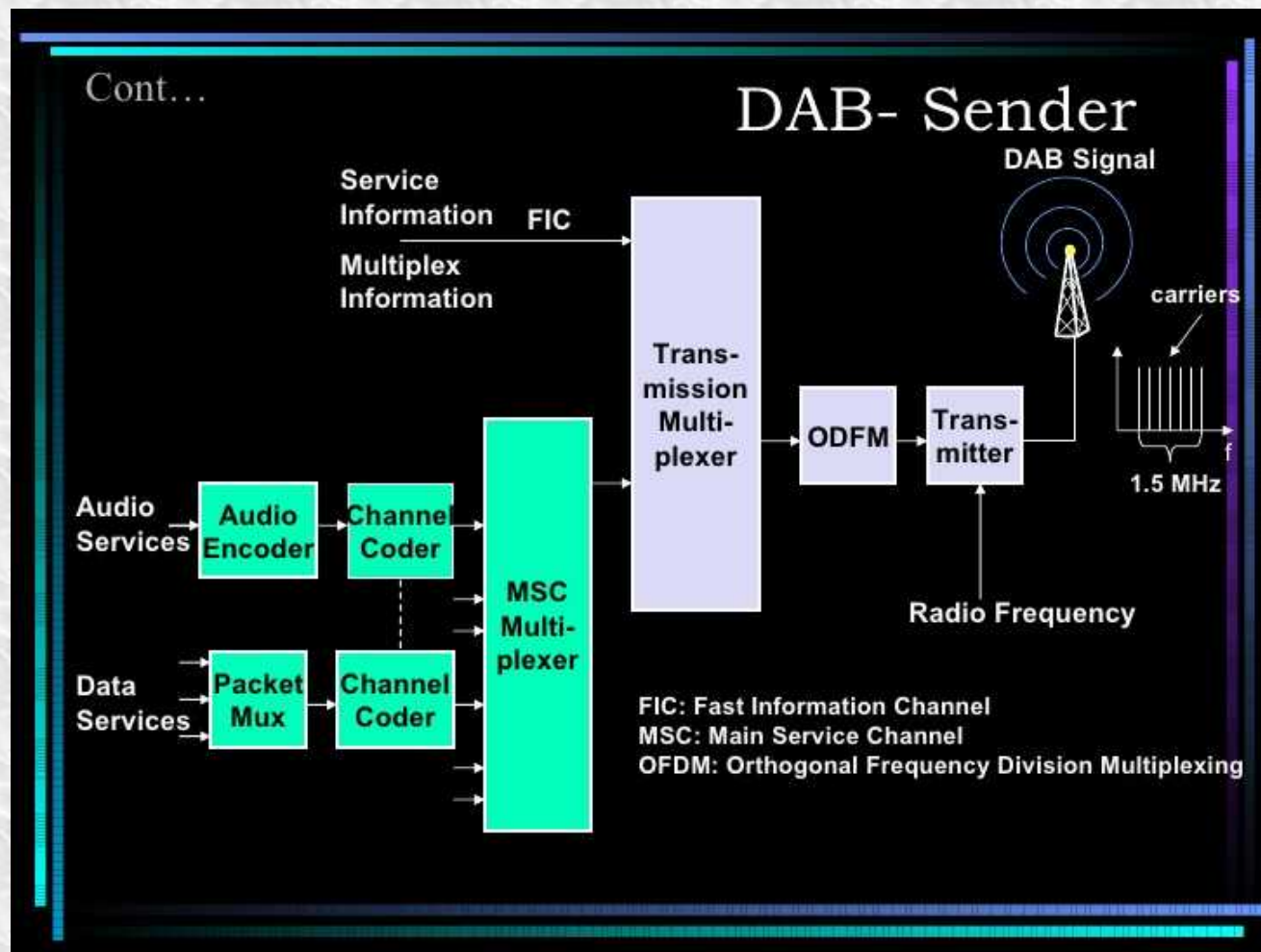


<http://www.opendigitalradio.org/>

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DAB+ Encoder





Raspberry PI

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DAB Multiplexer



<http://www.opendigitalradio.org/>



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120 anni e' ancora rocckeggiamo!!!



TERNI GNU/LUG

<http://www.TerniGnuLug.it/>



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[Www.RadioGalileo.it](http://www.RadioGalileo.it)