



# Amateur Radio Raspberry Pi Projects

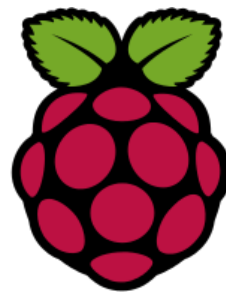
Eric Vinande, KG6NFJ

Bellbrook Amateur Radio Club



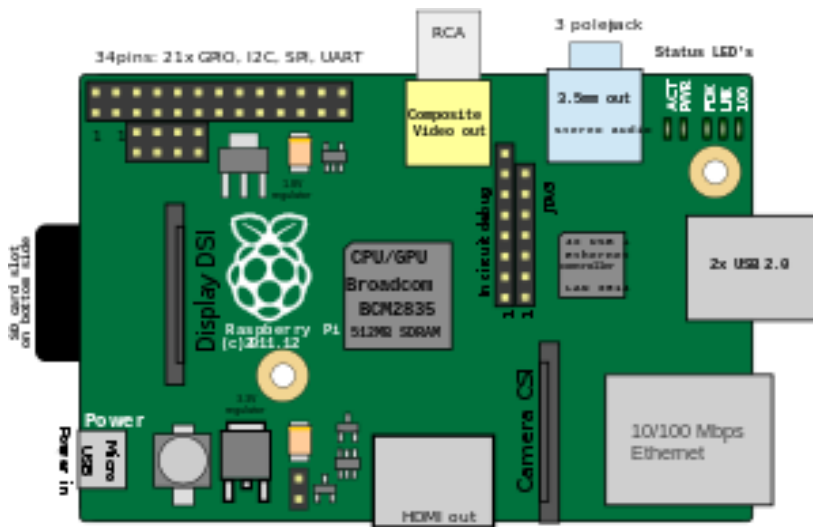
# Outline

- Raspberry Pi Background
- Projects
  - TNC-Pi (Packet Radio)
  - rpitx (Pi Transmitter – no filtering)
  - QRPI (20 m Pi Transmitter with filtering)
- Maker Fest (March 12)

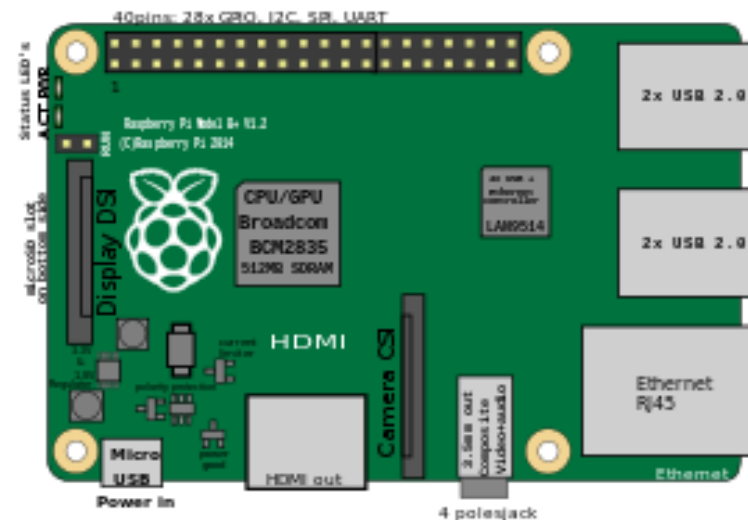


# Raspberry Pi Background

- Series of credit-card sized single-board Linux computers created by the Raspberry Pi Foundation to promote the teaching of basic computer science in schools and developing countries
- Most are \$35, with an elusive \$5 version (Pi Zero) in the wild



Raspberry Pi 1 model B

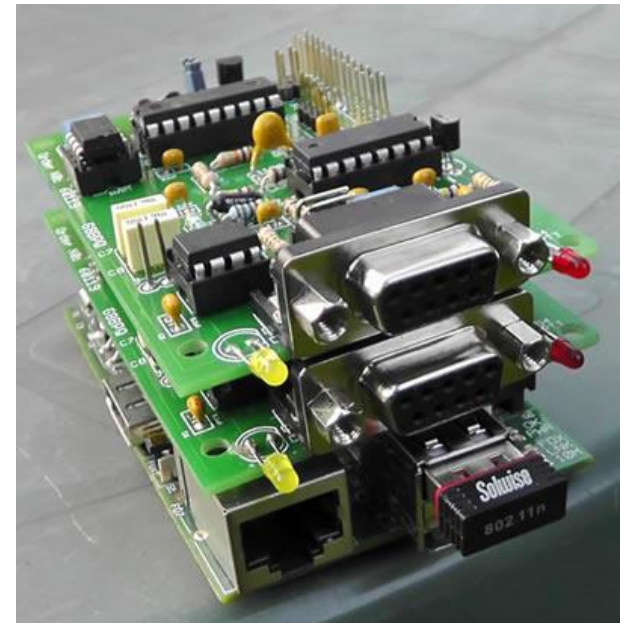
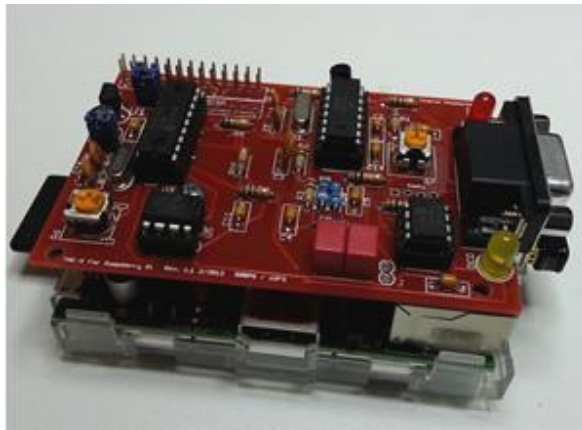


Raspberry Pi 1 model B+,  
and Raspberry Pi 2 model B



# TNC-Pi

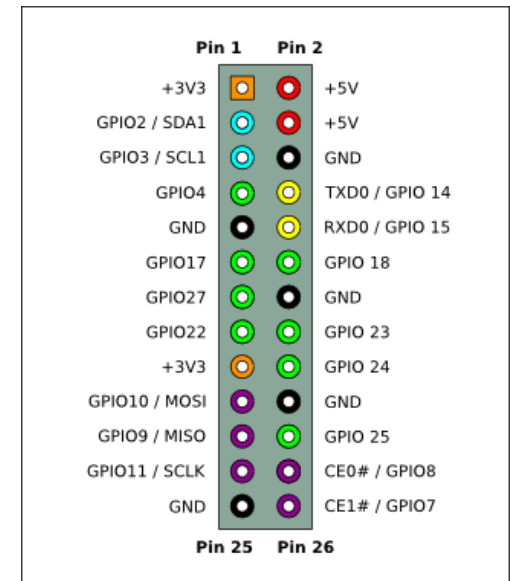
- Terminal Node Controller (TNC) for packet radio
  - Shield kit from Coastal Chipworks
  - Can do APRS, ISS Packet, satellite telemetry, etc.- anything that uses AX.25 protocol
  - Multiple TNC-Pis can be stacked (cross-band digipeater)
- Xastir (Linux APRS) TX/RX demo





# “rpitx” Software

- Transmitter application from Evariste Courjaud (F5OEO) that utilizes pin 12 on the general purpose input output (GPIO) header
- Capable of transmitting SSB, FM, SSTV, and FSQ from stored files on 130 KHz to 750 MHz carriers
- Transmitting demo to RTL-SDR





# QRPi

- Shield kit from TAPR
- Transmits on 20 m with 0.1 W using the Weak Signal Propagation Reporter (WSPR) Protocol
  - 110 sec transmission of a 50 bit message containing call sign, grid square and transmit power starting on odd minutes
  - Most receivers upload to [wsprnet.org](http://wsprnet.org)
- Look at calling script output



# Maker Fest

Maker Fest is a **FREE** event celebrating the maker community of Dayton! Anyone who likes to build, sew, tinker, solder or program is welcome to attend or exhibit.

**When:** Saturday, March 12, 9:00 AM – 3:00 PM

**Where:** WBI Tec^Edge, 5000 Springfield St., Dayton OH

**Who:** All ages welcome, persons under 18 must be accompanied by parent or guardian.

**For more information or to register for an exhibit booth:**

[www.makeitdayton.org/maker-fest-2016](http://www.makeitdayton.org/maker-fest-2016)  
[makeitdayton@gmail.com](mailto:makeitdayton@gmail.com)

