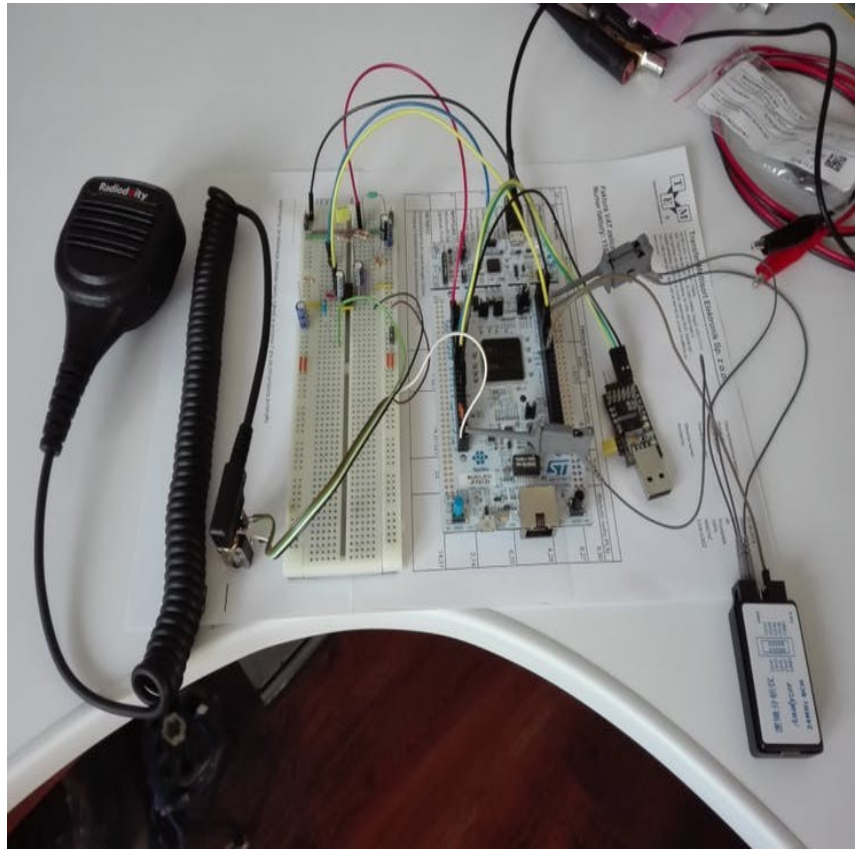
What is M17?

Ed N2XDD

Steve KC1AWV



What is M17?

From the M17 Project website https://m17project.org/

“M17 is a community of open source developers and radio enthusiasts. We're building understandable systems in support of the hackers and experimenters' history of ham radio. M17 is currently focused on creating an Open Source digital radio mode.”

Existing VHF/UHF DV modes are mostly derived from commercial standards (P25, DMR), are proprietary (Fusion) or are mostly open with proprietary components (D-STAR). The vocoder in all of these modes is proprietary (AMBE/IMBE variants from DVSI).

M17 Application Features

100% open source software and hardware, including the Codec 2 vocoder. Specifications available at https://m17-project.github.io/M17_spec

Built by a global team of amateurs

9600 bps 4FSK modulation (4800 symbols/second)

Codec 2 at 3200 bps (voice only), or Codec 2 at 1600 bps (mixed voice and data)

Short messages (SMS)

File transfer support

GPS location reporting and APRS-IS integration

Optional strong encryption (where permitted)

Simplified reflector operation

History

M17 started in Warsaw, Poland, by Wojciech Kaczmarski SP5WWP. The local club was heavily into DV modes

After experimenting with existing DV modes, Wojciech decided to design his own mode, which is now known as M17

Codec 2, written by David Rowe VK5DGR et al., was chosen as the vocoder because it is open source and free to use

M17 is named after the street address of the SP5KAB radio club in Warsaw – Mokotowska 17

Over the past 3 years, a global team has contributed to M17 in hardware and software development, testing, publicity, and maintenance of infrastructure

Development

M17 is under very active development. Many parts of the ecosystem are currently available

Reflector – mrefd developed by Tom N7TAE and Colby W1BSB, is available and widely deployed

Repeaters and Hotspots – MMDVM by Jonathan G4KLX now fully supports M17 in the production code. M17 support in Pi-Star by Andy MW0MWZ, is expected soon

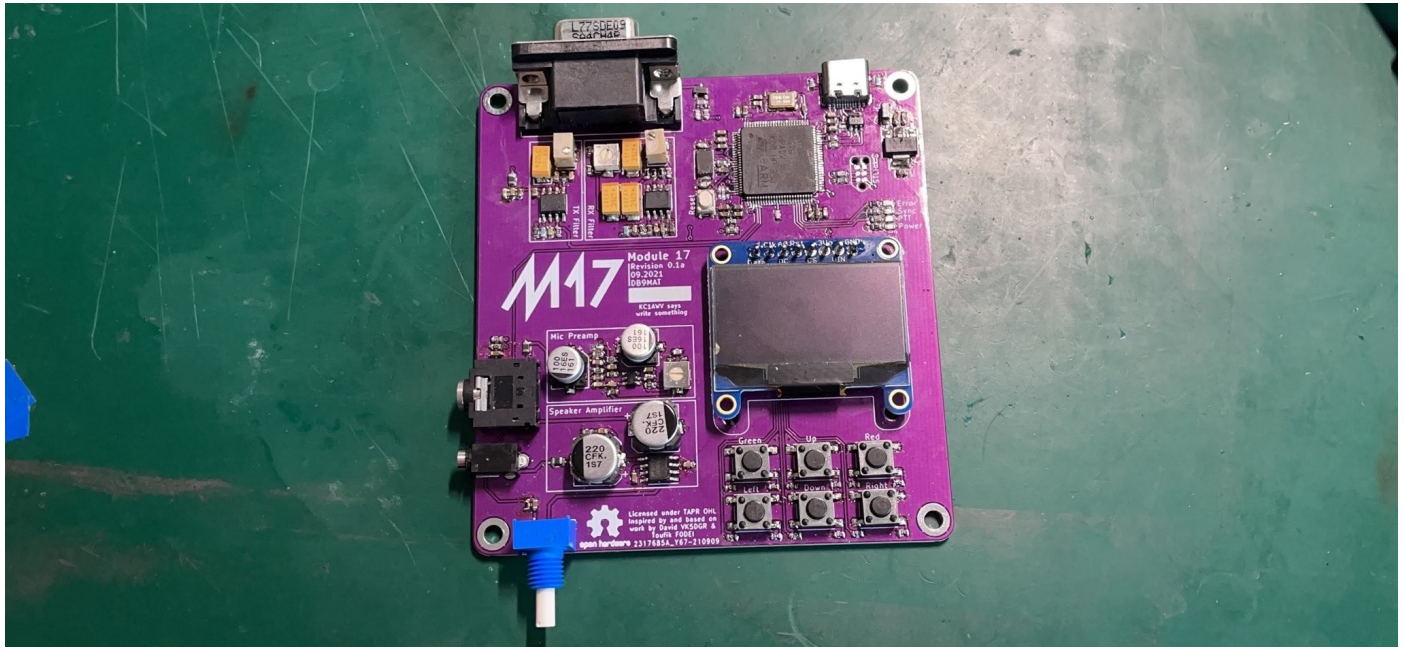
Internet clients – mvoice by Tom N7TAE, DroidStar by Doug AD8DP both support M17

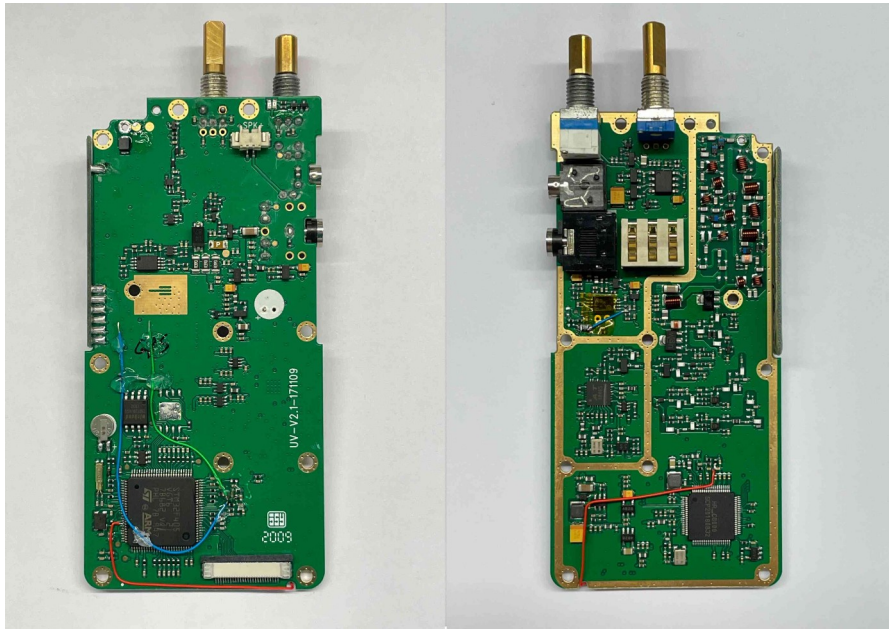
Radio modems – Module 17 by Mathis DB9MAT, and the OpiM17 module by Pedro M0IEI

Radios – None exist yet, however the OpenRTX project is building firmware for MD-380 and similar radios which requires a minor hardware modification

- Transmit works, receive is in development

SDR – SDR support includes SDR++ (Rx), Openwebrx (Rx), Rpitx (Tx) and GNURadio.


M17
Module 17
Revision 0.1a
09.2021
DB9MAT
Mic Preamp
Speaker Amplifier
Green
Up
Red
Left
Down
Right


UV-V2.1-171109
2009


M17
M17

M17

Getting Involved

M17 is a community that thrives on volunteer involvement

Main activity is based at the project's Discord server and Matrix Space

There are many aspects of the community to get involved with

- Software and Hardware Development
- Software and Hardware Testing
- Publicity and Communication
- 3D CAD and printing
- Operating
- Many more!

Getting on Air – Via Internet and Other Modes

Internet access to M17 is possible through multiple apps.

- mvoice
  - Linux client
  - Compatible with Raspberry Pi
  - Use your own headphones and microphone
- DroidStar
  - Android available from Play Store
  - iOS beta available via TestFlight app
  - Linux available by compiling source - qmake

Getting on Air – Via Internet and Other Modes

Cross mode tools allow other modes to be gated to M17

- USRP2M17 (link to AllStar and other USRP capable software)
- DMR2M17 (link to a DMR talkgroup)
- M172YSF (link to a YSF reflector)
- DVSwitch – Analog Reflector

Getting on Air - RF

M17 RF transmission is available now

MMDVM hotspots can be upgraded to support M17 with Pi-Star support coming soon

M17 modem implementations

- M17Client (Jonathan G4KLX) – works with an MMDVM modem and a 9600 capable radio or MMDVM hotspot. GUI (X Windows) and Nextion touch screen interfaces available
- TNC3 Bluetooth TNC by Mobilinkd (Rob WX9O) – supports M17 with a firmware update and companion Android app. Works with a 9600 capable radio

Getting on Air - RF

Partial (Rx or Tx)

- SDR++ (Rx) by Alexandre ON5RYZ - Inbuilt M17 decoder
- Openwebrx (Rx) by Jakob DD5JFK - Optional M17 support
- Rpitx (Tx) by Evariste F5OEO - Supports Tx on a Pi without additional hardware
- OpenRTX by Niccolo IU2KIN et al. - Tx support works, Rx under development

Under Development

- Module 17 by Mathis DB9MAT - Self contained microphone and modem (smart-mic) for 9600 capable radios
  - Will run OpenRTX firmware
- OpiM17 by Pedro M0IEI

Grants, Sponsors and Partners

Grant from ARDC

- In April 2021, ARDC granted M17 $250,000 for research and development

ORI Fiscal Sponsor

- Provides all benefits of a 501(c)(3) non-profit with fiscal support

OpenRTX

- Develops firmware with M17 support for many radio platforms

Ettus Research

- Provided hardware for RF research and development

More Information

M17 Project https://m17project.org/

OpenRTX https://openrtx.org/

Cross Mode Tools (USRPM2M17, etc)

- https://github.com/nostar/MMDVM_CM

M17 Net on Fridays at 1700 UTC (M17-M17 C)

Join us on the M17 Discord or Matrix Space and find out how you can get involved!

- https://discord.gg/G8zGphypf6
- https://matrix.to/#/#m17-project:matrix.org

Questions and Answers

Beginning now