

coverdrive™

The Evolution of coverdrive

The development of coverdrive began approximately eight years ago from a personal need to efficiently tune a magnetic loop antenna for amateur radio operation.

The original system was based on the Arduino Nano platform using a 4x20 LCD display and a DRV8825 stepper motor driver to control the tuning capacitor.

Over time, the project gradually evolved from a basic motorized tuning controller into a much more advanced intelligent magnetic loop antenna control system featuring real-time VFO tracking, precision stepper control, touch-screen operation, learned resonance mapping, EEPROM-based adaptive tuning memory, and intelligent interpolation between saved resonance points.

The development of coverdrive has always focused on real-world usability, graceful operation, smooth tuning behavior, and practical amateur radio operation under live RF conditions.

Today, coverdrive has evolved into a sophisticated ESP32-based intelligent magnetic loop antenna controller designed to learn and improve tuning performance over time while maintaining stable and predictable operation.

Evolution History

- Arduino Nano
- 4x20 LCD
- DRV8825
- stepper tuning
- ESP32
- touch display
- intelligent resonance learning.



coverdrive Magnetic Loop Antenna Controller

Document: The Evolution of coverdrive

Purpose: Introduction to the coverdrive development