

100 watts Small Magnetic Loop Antenna



This small magnetic loop antenna was designed for installation on the top of the roof and remotely tuned by a small geared DC motor coupled to the variable air capacitor shaft.

The motor is controlled by a PWM circuit that precisely sends DC voltage on a train of pulses for fine tuning the antenna to the resonance point.

The antenna is made with 2.80 centimeters of Cell Flex cable shorting the inner conductor with the outer copper foil.

The antenna is covering from 12 MHz to 32 MHz with a 8 PF to 80 PF wide spaced variable capacitor.

The small loop is made on 56 centimeters of RG213 coaxial cable shorting the inner conductor with the outer coaxial braid.

The 100 watts capability was possible by the use of a high isolation variable capacitor.

One of the great issues to design this antenna was select the ideal enclosure to protect the capacitor and the motor against the rain, sun and moisture.

A damaged outdoor infrared sensor activated security lamp was the perfect and elegant solution to accommodate the variable capacitor and the geared motor.





Variable capacitor soldering joints made with RG213 coaxial braid.



Inner loop made with 56 centimeters of RG213 coaxial cable.



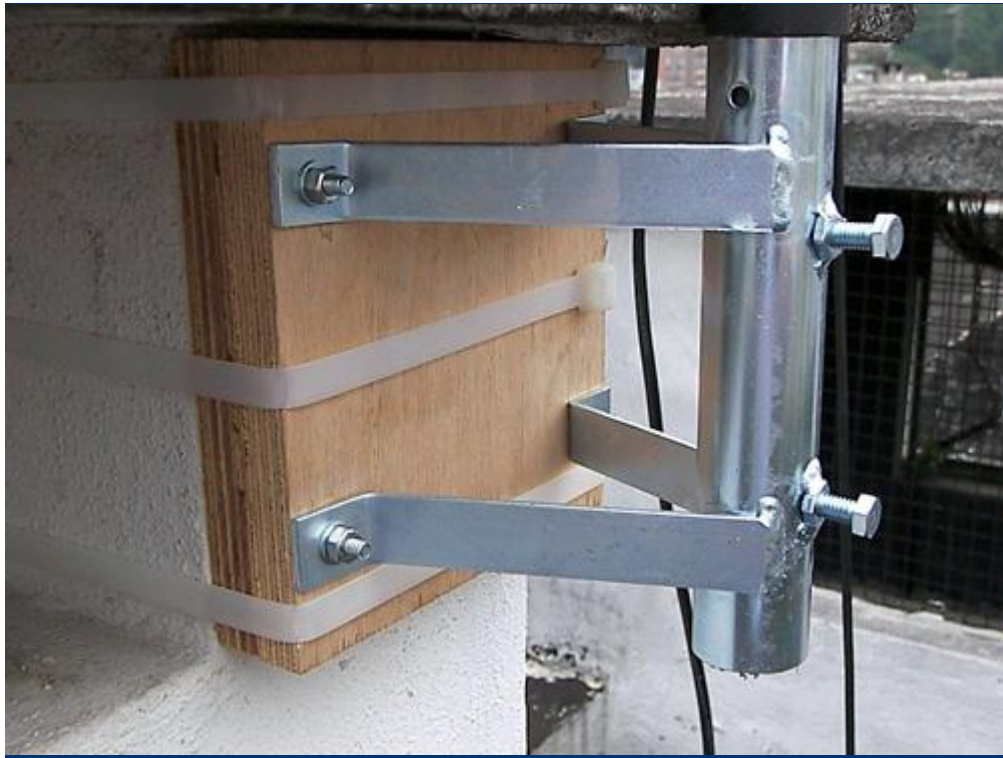
Final antenna tests before installation on the top of the building.



Silicone rubber sealant applied on the plastic cabinet junctions.



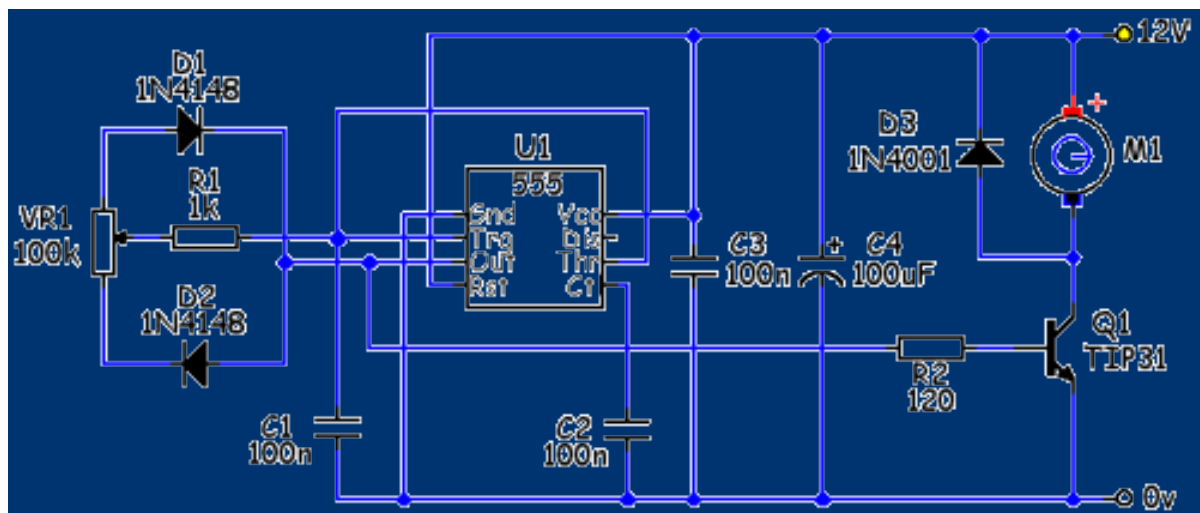
100 watts magnetic loop installed with no holes on the structure.



No holes fixing with waterproof wood and 50 cms. plastic ties.

PWM Motor Speed Control.

The motor is controlled by a PWM circuit that precisely sends DC voltage on a train of pulses for fine tuning the antenna to the resonance point.



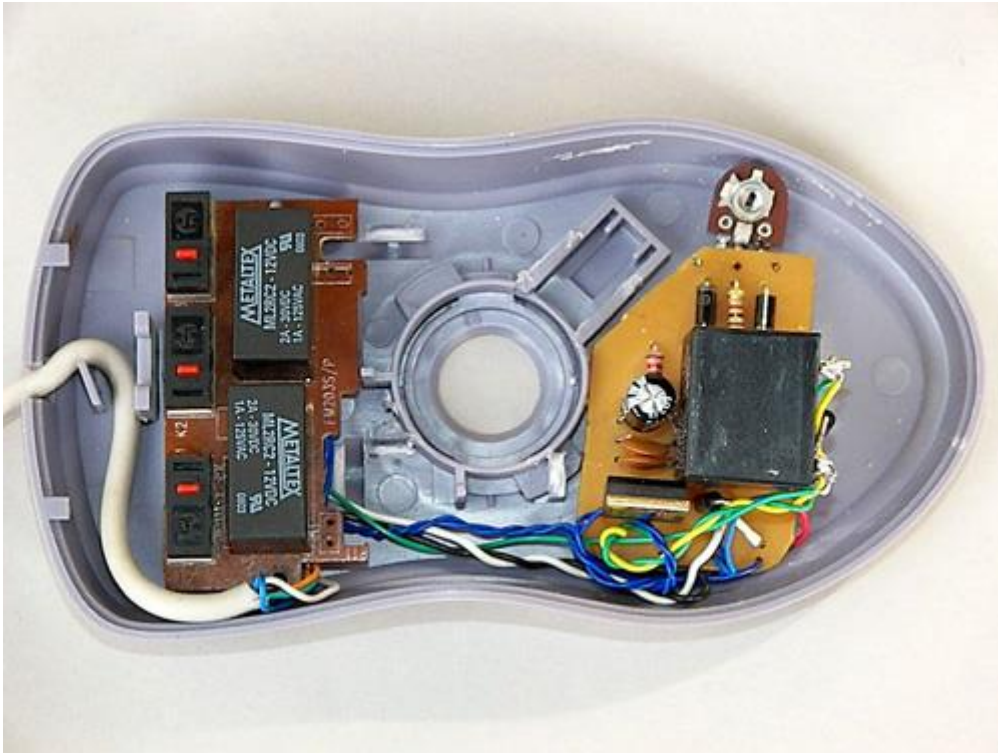
The PWM (Pulse Width Modulation) circuit is very important to fine adjust the variable capacitor position.

The geared motor on this project is a 12 VDC unit that receives the 12 VDC power supply voltage direct for the higher speed tune; once passed the peak receiving signal the reverse lower speed button is pressed for the fine tune adjustment.



All inside a mouse magnetic loop control





The all inside a mouse small magnetic loop control concept is a more practical and elegant solution. The only interface required is a small box with two DC female connectors.

IN = 12 VDC input.

OUT = PWM DC low speed voltage or 12 VDC voltage selected by the mouse buttons.

All inside a mouse small magnetic loop remote control



HF Station and the “all inside a mouse magnetic loop control”.

PY1 AHD ALEX (Alexandre Grimberg).
e-mail: py1ahd@ig.com.br