

Abstract:

HARV1 is a consumer product that is meant to prevent squirrels from being a nuisance and destroying gardens. It will scan the area in front of it searching for squirrels. If a squirrel is detected, the robot will shoot the squirrel with an automated water gun. This will deter the squirrel without harming it. HARV1 will be portable and low maintenance. All that is required is a connection to an outlet, a garden hose, and an internet connection. After the initial set-up, the robot will automatically detect and shoot squirrels without any user input. Currently HARV1 is trained to only deter squirrels, however, it could easily adapt to identify and squirt other vermin.

HARV1 is split up into 3 main subsystems, the structure, the electronic components, and the computer vision software.

The structure includes the design of the stand and the moving parts. The current structural design is to have a tripod based turret. This enables the robot to be placed nearly anywhere while still being structurally stable. It will make use of two motors to aim the water gun. These two motors will be controlled by a Raspberry-Pi, which acts as the brain of the turret.