Solar Tracker

The hardware side of the FisheriesNET project, is made of a series of Arduino-based devices that allows to put a GPS in a boat, in order to know the locations that said boat has been, using a web based application.

First, we have a GPS device, that is built using TinyCircuits shields, and a 32 bits processor. Shields are:

- GPS shield. Allows to know device location, and can be programmed to get tracking position every second or using other wider intervals of time.
- SD shield. Allows to store tracking position in a microSD card.
- Radio shield. Allows to send information stored in a microSD card, to a gateway computer. Distance range is around 500 meters in open view.

The processor used is a TinyCircuits TinyZero processor, based on Atmel SAMD, equivalent to an Arduino Zero processor.

Next, we have a Gateway device, that is built using a TinyCircuits shield, and a 32 bits processor. This device only needs one Radio shield, and is responsible of acquiring data from GPS devices, to later send it to a Gateway computer, that will backup info to send it to a server.

The Gateway computer, can be a Raspberry Pi 2, Raspberry Pi 3, Raspberry Pi Zero W. This computer should run Raspbian, and requires internet connection, to send information gathered through the Gateway device, to a server in the internet.

To program GPS devices and Gateway devices, check document “001 - Arduino IDE setup”, that shows information on how to configure a MacOS X computer to be used to program all needed devices. Information on what sketches need to be used to program devices, can be seen in document “003 - Devices setup”.

To configure Gateway computers, you need to check document “002 - Gateway”. All work will be done on computer you selected to work as a gateway. Expected computer models are Raspberry Pi mini computers.

And to review information generated by GPS devices and stored through Gateway computers, you can check mini site:

http://blueprints.ucsd.edu/uploader/