

Generic Marine Auto Pilot

Intension

Create an autopilot for small motorboats. I have found it quite challenging to catch all the fun when running my boat at low speed (which I do most of the time). Steering takes too much of my attention.

The high level requirements

The solution should

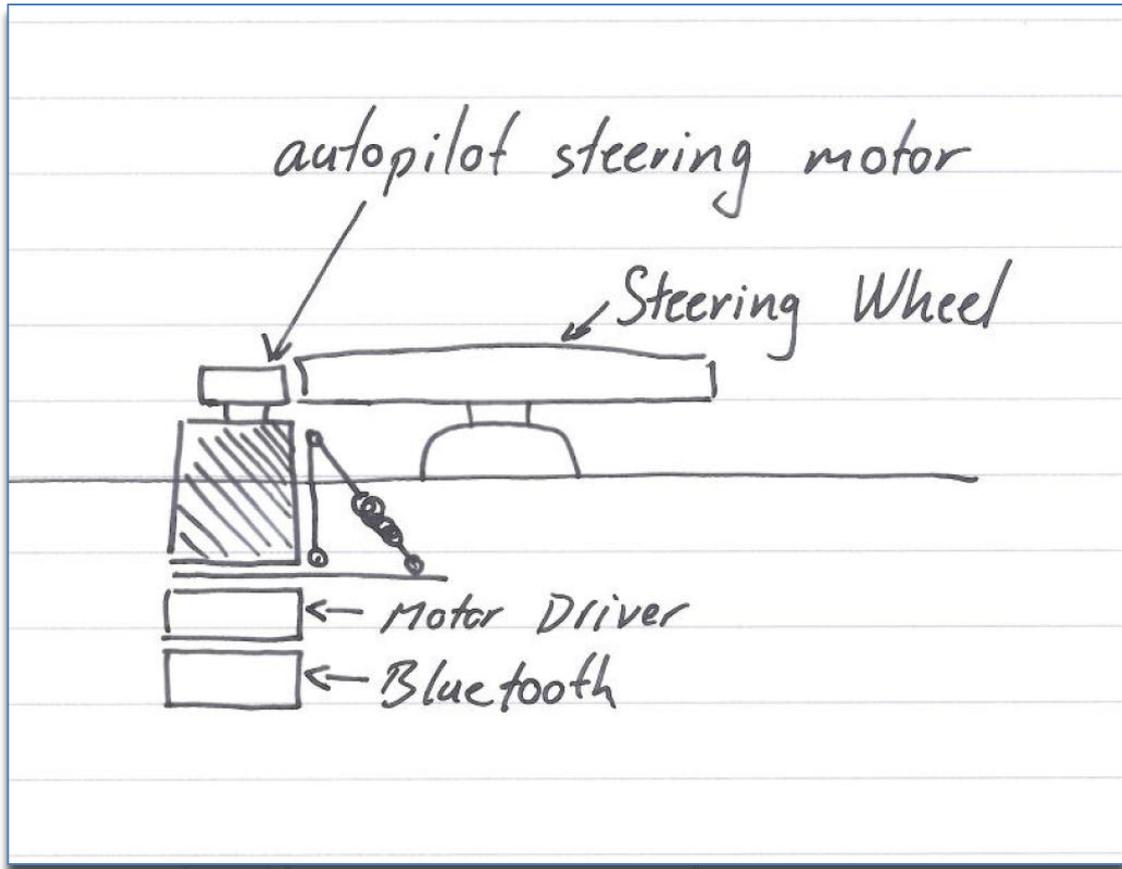
- be a low cost Autopilot for motorboats with steering wheel
- the only feedback on the control loop should be the direction measured on either GPS or compass
- be mounted with a minimum of technical skill
- be controlled based on existing and well known consoles
- be adaptive and not require the owner to enter any (or a minimum of) steering settings
- be running on voltage source already exists in this kind of boats
 - 12 VDC

Thoughts / Pre Studies

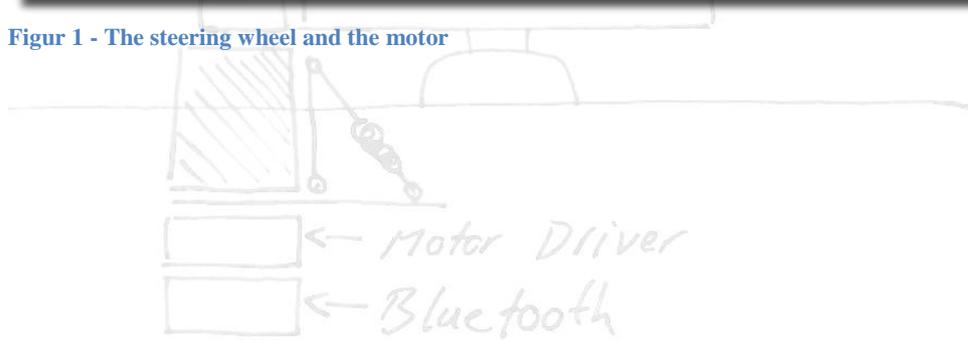
- Create a set up with a 'servo motor' that connects directly to the steering wheel of the boat
- The driver for the motor, the motor and the connection to the controlling unit should be delivered in one compact package.
- The connection between the controlling unit and the motor/motordriver is based on Bluetooth
- The controlling unit is a SmartPhone with Compass, GPS and Bluetooth modules included. The first version of the software should be written for Android.
- The control unit should be implemented with a simple UI. Minimum requirements for the UI:
 - Show current Course
 - A button to set/reset the course
 - +10° and -10° course correction
 - +5° and -5° course correction
 - A button to stop the Auto Pilot

Drawings

The drawings are just to give an impression of the original thoughts around this set up. The final result should be better packed to ensure easy handling.



Figur 1 - The steering wheel and the motor



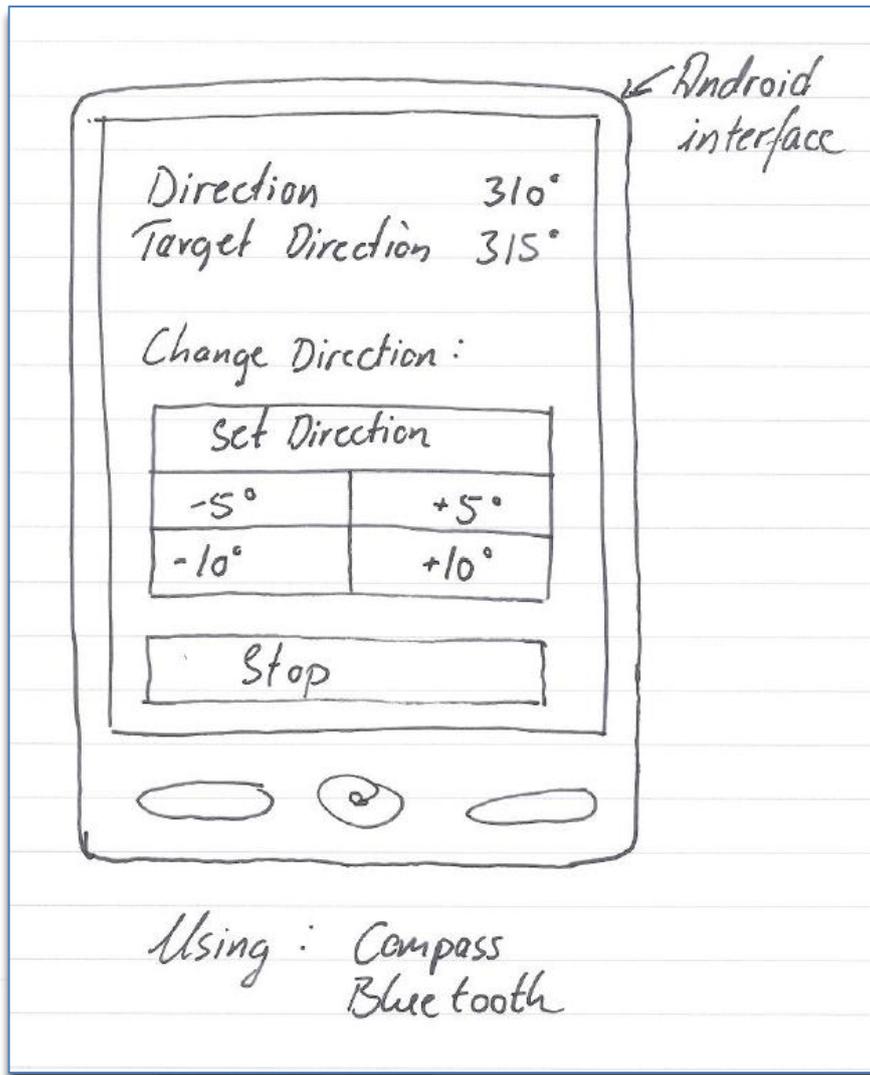


Figure 2 - A sketch of the UI on the SmartPhone