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European Project Semester 2013

Outboard electric propulsion

INTRODUCTION

The assignment for this project came from the company **Innovanautic**. They asked us to design an electrical outboard engine which has to propel small sailing and fishing boats out of the harbor.

The team divided this assignment into 4 major fractions; mechanics, electronics and electricity, design and marketing.

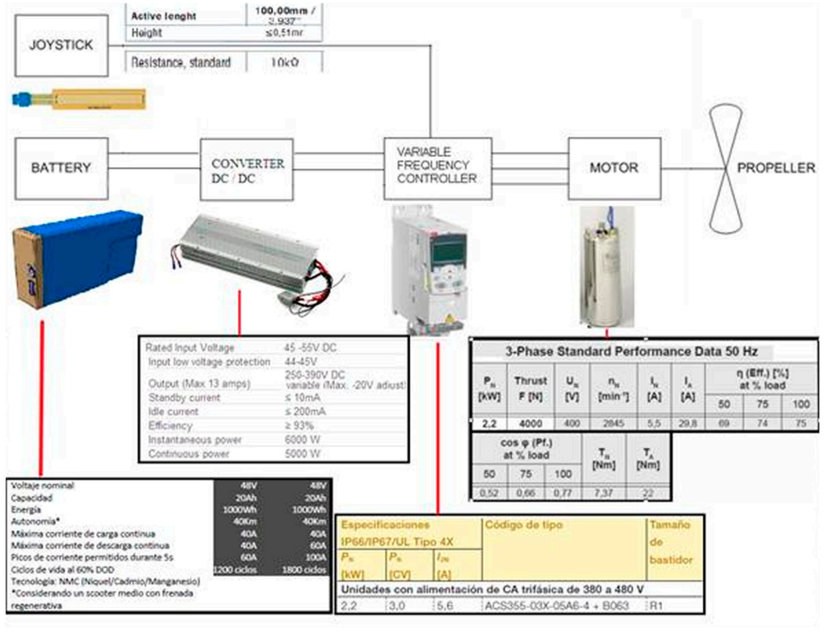
SPECIFICATIONS	
Battery type	1x48V DC / 20Ah / 8,8kg
Motor power	2,2kW
Control	Manual steering / electric throttle
Autonomy	3,5h
Gear Shift	Forward / Neutral / Reverse
Degree of trim	Revert positions
Steering	Manual
Warranty	2 years
Weight	30kg
Dimensions	1138 x 343 x 1928 mm
Shaft type	Oval
Degree of Tilt	57,5º

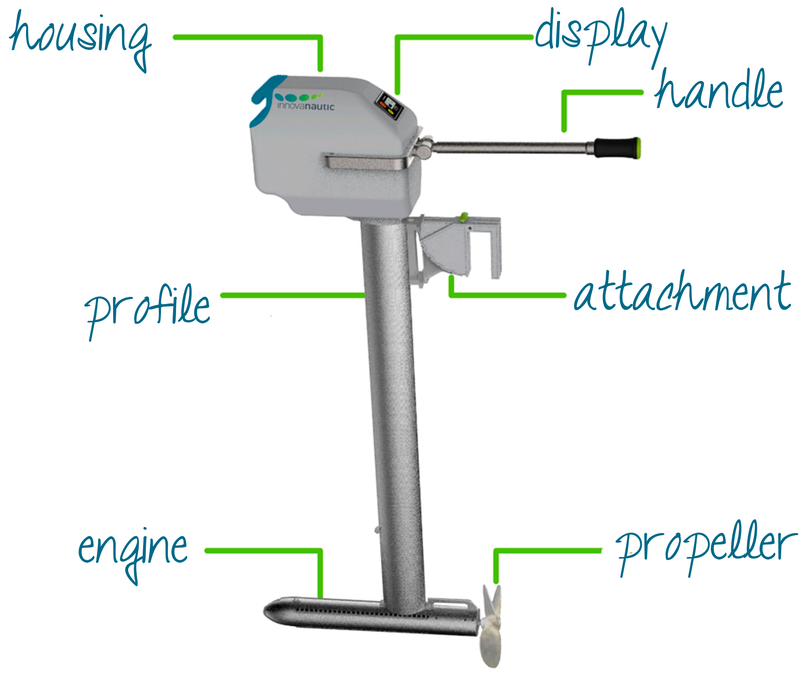
Transportable

Electric

Manual

Autonomous

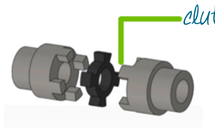


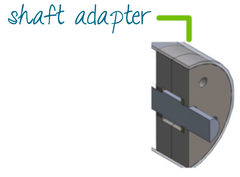


The hinge system is made for to put the engine in transport mode and make the engine easy to carry when you move it.

The flipping system of the engine has a very simple solution and is very easy to use. The user should press the spring buttom and flip the engine in the right position. The system has several positions to have the engine in.

The clutch and the shaft adapter are made to connect the engine to the propeller which has a different diameter than the axel from the engine itself. The clutch is made for to have a smooth rotation between two shafts with different dimensions. The shaft adapter stabilizes the shaft during rotation.





RESULTS

The complete system was mechanical designed and calculated. The focus here was on creating a light system with the ability to ajust the motor depth and flip the engine to improve portability. All of the exterior components were designed in aluminium for the same purpose. Calculations were made and checked with the help of finite elements software.

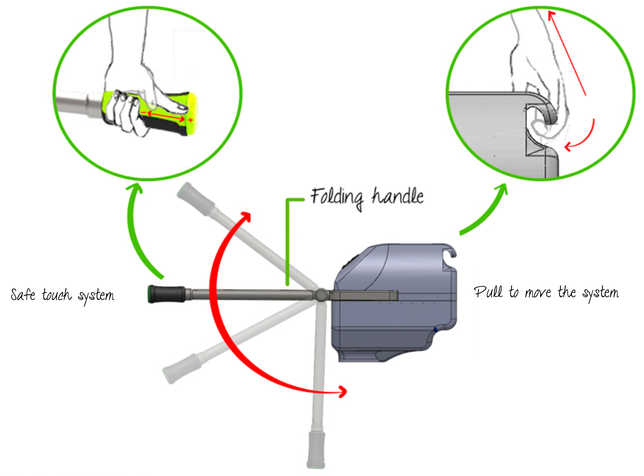
The shape has been designed to facilitate the interacion with the user, which has been completed with the ergonomics study.

User's chacarteristics:

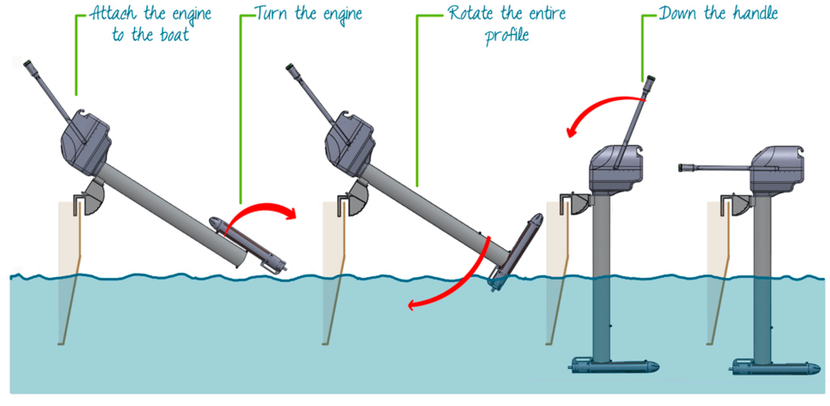
- Experience with boats
- Occidental nationality
- Any disability

Context of use:

- Europe
- Short distances
- Flashing time of use



PROCESS



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