Waterrocket Launcher – Automated (WRL)

Luethard, Alexander
Liebeskind, Joram

Goal Our goal was to fully automate the process of filling and launching a water rocket. Also we tried to calculate the behavior of the rocket in the air. Methodology In our project WRL we worked following the rules of the methodologie IPERKA. This guideline consists of the terms inform, plan, decide, realize, check, analyse. At first we did a timetable for the project, the budget planning as well as a specification sheet. In the specification sheet we wrote down our first sketches and ideas as well as our goals for the project. Results We were able to say we reached our goals with our prototype of the WRL. The prototype is based on two parts; the operating panel and the launcherbox. Built into our operating panel there is a touch pad which acts as a user interface as well as the control system. On the touch pad the user is able to make every needed adjustment, also you can follow the process on the screen. The launcherbox has built in components for controlling the fluids and the release mechanism. Our rocket model has a height of 1.70m, a volume of nine liters and a built in parachute which secures save landings. Discussion We had several requirements for the project from our training school, for example the use of Components from the automations industrie. Without such requirements the PLC could be replaced by a microcontroller. With such a device the project would be a lot smaller, lighter and cheaper. The housing also has some money saving potential. Conclusion Overall we were able to build a mechanical and optical satisfying prototype of the WRL. We were able to fulfill all our goals except the one with the parachute. To sum it up we can say we made a lot of informative experiences along the project. In a positive and negative sense.