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The way we teach: The cases of backward pedagogy, through prototyping and aiming for the societal benefits

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In this paper we present the three cases of innovative pedagogy; the teaching of physics was conceptualized and designed in a such way to bring outcomes in order to serve the society.

The first one exploits the backwards pedagogy where physics was thought to non-physics students; the students were future teachers of primary school. By prototyping the microgenerators we promote harvesting of the micro-energy as societal responsibility and by utilizing the recycled components we emphasize the way circular economy can be sustained. The examples of the pedal and wind-belt generators will be shown.

The second case exploits the use of open source and open hardware, such as Arduino and Raspberry pi in Physics lessons. Different set-ups covering the applications such as for COVID, Parkinson and dementia will be presented.

The third case utilizes the mobile technology and the sensors that are built in mobile phones. To access the sensors from the phone and to perform the specific measurement an Android app was utilized. The applications in tracking human movements with an emphasize on potential of their use in prosthetics or towards the support in communications of deaf people will be presented.

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