The ecological badminton robot (w/ video)

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A robot to play with! A childhood's dream has now come true for researchers at the Flanders' Mechatronics Technology Centre (FMTC) in Belgium. Wim Symens and his team pioneered the development of the first robot ever to play badminton. But this robot is only a guinea pig to test a software application designed to optimise energy efficiency in machine design.

Thanks to the EU funded research project ESTOMAD, a new computer program is now capable of detecting the energy guzzlers in so-called mechatronic systems, that are controlled by both software and electronics. The results are impressive. Following an energy efficiency analysis of the badminton robot with the new software, the team made some small changes where most of the energy was identified as being wasted in the robotic system. "We were able to cut down the energy consumption of the badminton robot by 50%!" claims Wim Symens.

Industry has already expressed interest in performing this type of energy efficiency analysis. For example, PICANOL, a key actor in the production of weaving machines, was thus able to cut the energy consumption of their existing machines by 10-15% by adapting the software to its production line.

In the future, engineers could use this software for machines even before they are built. Performing a virtual analysis at such an early stage, could provide a very important competitive advantage to industry. "A virtual approach is always a preferred one. You can even simulate strange conditions; very fast or very high temperatures. In real life those tests are

very expensive!" explains Tom Boermans of engineering solution consultancy LMS International, who is based in Leuven, Belgium and one of the partners in the project.

Ultimately, the badminton robot and the innovative software will help engineers of many different industries cut down the energy consumption of their production line –making it more sustainable—while reducing the costs of their end products. It is eco-innovation at its best.

More information: www.estomad.org/

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