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Module 2
Unit 2.3: Application areas of AI: Robotics

Developed by: TECHNISCHE UNIVERSITÄT DRESDEN

Technische Universität Dresden

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Module 2 | Unit 2.3

Total estimated time:	~ 140 min.
Task:	• Addressing the role of robots in an automated world

Learning objectives	
Educators:	**Gain** an overview into application areas of AI, e.g. Robotics
Students:	**Gain** an overview into application areas of AI, e.g. Robotics **Know** the basic logic of algorithms within a playful programming environment

Schedule:

Unit part	Estimated Time	Target group	Approach	Content description depending on Level / Age	Materials (Links, Worksheets, etc.)
Intro	15 min	PS/ GS	LingA AbstrA	**Introductory talk with targeted and in-depth questions** Students are given time to answer a selection of targeted questions quickly and intuitively about robotics on a worksheet. For this, they can evaluate the answers from the previous questions to find a common definition.	**Sonic the Hedgehoc TV series** **Questions on worksheet**
	45 min	PS/ GS/ HS/ AE	HaptA	**Playful Introduction by creative construction of a robot** The students are given a template on which they can draw or describe their robot as they wish. Additional/Alternative: Students construct a robot of their choice or a template from a set of components (e.g. Lego Mindstorms).	
Dev	90 min	PS/ GS/ HS/ AE	HaptA	**Use and Program a robot** The students programme a selected robot, depending on the previously constructed model. • Using Ozobot for learning about robotics. Coding by Color codes. **or**	**Ozobot:** https://ozobot.com/ **Lego Software:** Downloadlink

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				• Using Lego WeDo 2.0 learning about robotics. Coding with free Lego-Software **or** • Using Lego Mindstorms EV3 learning about robotics. Coding with NEPO IDE	**Mindstorms EV3/NEPO IDE:** https://lab.open-roberta.org/
	90 min	GS/ HS/ AE	HaptA	**Program a robot according to a specific task** The students programme a selected robot, depending on the previously constructed model and to a specific task given. e.g. • The robot follows a precise sequence of previously defined movements • If possible, the robot is to move within a certain area and use its colour sensors to do so. • If possible, the robot follows a path and has to avoid obstacles skilfully	
Recap	15 min	PS/ GS/ HS AE	LingA	**Transfer performance** The students consider to what extent the tasks performed by the constructed robots can be transferred to the everyday world or where they make sense. To do this, they collect examples or brainstorm about potential fields of application. (e.g. Industry 4.0, Storage Logistics, Health Assistance for elderly people, Host Assistance like guided City Tours). The results can be collected in a word cloud.	**Word Cloud Generator** https://www.wortwolken.com/ https://tagcrowd.com/
Add	15 min	PS/ GS/ HS/ AE		**Concluding summary of module 2** The students are faced with a summary of the most important findings from module 2.	**Online:** https://kahoot.com

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| | | | | Additionally an interactive quiz can be designed with the software Kahoot.

About the App:
Kahoot! is an application that enables the creation of interactive learning games/quizzes. Students can participate in the game/quiz collaboratively or individually from different devices. | |