QONUR – AI-POWERED ROBOT BEAR

WHO IS QONUR AND WHY A TEDDY BEAR?

Qonur is an inclusive actor robot bear powered by artificial intelligence. Designed for children and adolescents, Qonur takes part in story-based performances that address topics such as bullying, empathy, and awareness using the language of theater and interactive storytelling.

The teddy bear is a universal symbol of emotional comfort and safety for children. In many cultures, teddy bears are often considered a child's first friend – a symbolic figure to share fears with and feel secure around. Believing in the emotional power of this symbol, Qonur has been visually designed in the form of a teddy bear to build instant connection and trust with young audiences.

Qonur operates on a hybrid system, functioning both through AI-based automation and manual control via a mobile application, following the principles of a robotic marionette. It is portable and easy to transport. This system allows Qonur to respond dynamically to performance contexts and enables natural communication in Azerbaijani, English, and over 120 additional languages.

STAGE PERFORMANCE AND ROLE

Based on its pre-programmed characteristics, Qonur performs as an actor in inclusive theatrical plays. It can take on the role of a narrator, a listener, or an interactive character that asks and answers questions.

While Qonur follows a prepared script, it is also able to respond adaptively and naturally to unexpected situations on stage. Although the performances initially focus on themes like inclusion and diversity, Qonur is easily adaptable to other social and educational topics in the future.

SCAN ME

RITUAL
MOBILE THEATER LABORATORY

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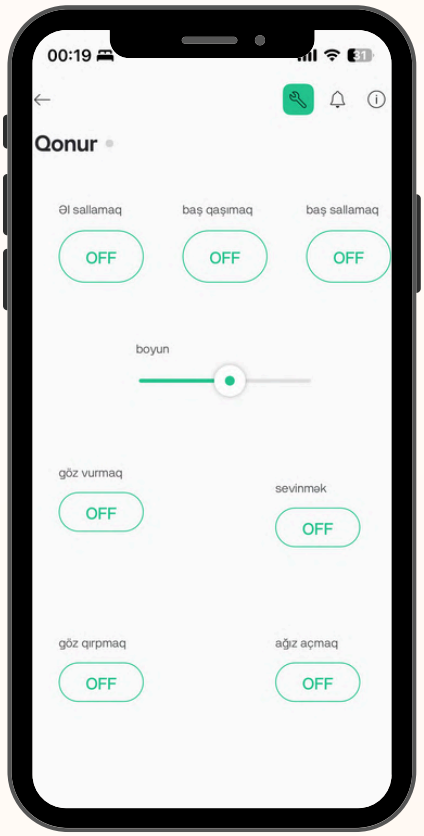
Swiss Agency for Development and Cooperation SDC

INCLUSION, EDUCATION, AND AWARENESS VALUES

Qonur is designed with an inclusive approach to openly communicate with children and adolescents who have physical and intellectual differences. Its communication style is simple, clear, and slow-paced, allowing children with diverse abilities to easily understand and respond. Through visual gestures, simplified language, eye contact, and body language, Qonur becomes accessible and understandable to all children. This helps it gain acceptance quickly, build trust, and effectively deliver inclusive educational and social messages.

Qonur serves as a practical and motivational tool in both educational and social awareness contexts. It can be used in various formats within schools, festivals, seminars, and educational laboratories—such as anti-bullying programs, empathy and social skills workshops, and as an interactive participant in robotics and technology classes.



TECHNICAL DESCRIPTION (HARDWARE & DESIGN) AND AI SOFTWARE SYSTEM

Qonur is built using PLA-based 3D-printed components. It measures 40 cm in height, 30 cm in width, and weighs approximately 2 kg. Its neck, arms, and eyelids move via servo motors, allowing it to perform expressive and realistic gestures on stage. A microphone is embedded in the ear section for listening, while a speaker in the chest area enables verbal responses. Internally, Qonur operates using a Raspberry Pi unit and an AI processing module.
Qonur is fully portable and can function without external power thanks to its built-in rechargeable power bank, enabling use in various environments such as schools, festivals, or open spaces without the need for cables or stationary power sources.

The AI system is built upon the Gemini API and voice-based NLP (Natural Language Processing) technologies. These tools allow Qonur to understand and respond to user questions while adapting its answers to suit the context of the performance. The software is primarily developed using Python and C++, offering both high functionality and real-time responsiveness.

Its Q&A system is based on predefined scenarios and personality traits, enabling emotionally appropriate, context-specific, and topic-relevant responses. In addition, Qonur supports open-ended questions, meaning it can go beyond fixed answers to engage in meaningful dialogue based on the thoughts and emotions of children and the audience.

USER AND MAINTENANCE GUIDE

A dedicated user manual and official website have been developed to ensure the safe and proper use of Qonur, as well as to provide access to technical support. The manual offers detailed instructions on activating the robot, powering it, connecting it to software, preparing it for performances, storage, and maintenance procedures. Additionally, the website includes supplementary materials, guides, and a FAQ section for users and professionals. Through this platform, users can both explore Qonur's features and interact with its AI-powered chatbot.
Since Qonur's structure is based on open-source files, educational institutions and schools can 3D print their own versions using existing 3D printers.

TEAM

Fuad Mammadov – Project lead. He coordinated the work related to Qonur's mechanical movements/structure, portable design, and 3D modeling.

Jamil Hamzayev – Robotics and software specialist. He worked on the setup of the hardware and artificial intelligence systems, as well as the integration of NLP technologies.

Gulara Aliyeva – Specialist in 3D design and assembly. She led the preparation and assembly of Qonur's physical components and finetunings.

Nadejda Potaenko and Almaz Hasanzada – Costume and visual appearance designers. They were responsible for designing and sewing Qonur's aesthetic look.

Aynur Zarrintaj – Scriptwriter and dramaturge. She contributed to the development of the project's content, visual approach, and the empathetic communication abilities of the AI model.