



4IR Technologies:
Robotics, AI, IoT

Emirate:
Dubai

Maturity:
■ ■ □ □ □
Proof of Concept

Type:
Public-Private

MANUFACTURING

003

Intelligent Watch Box for Haute Horlogerie

ACTORS

Audemars Piguet
Dubai Future Labs / Dubai Future Foundation

SNAPSHOT

After 2 years of joint development, Audemars Piguet and Dubai Future Labs unveiled an intelligent watch box at Dubai Watch Week in November 2025. The watch is placed inside a box, a computer vision system reads the current positions of all calendar indications on the dial, and a motorised arm interfaces with the crown to automatically set and wind the perpetual calendar to the correct date, eliminating the risk of damage from manual adjustment.¹ Dubai Future Labs, the robotics and applied research arm of the Dubai Future Foundation, designed and integrated the full technological architecture. The intelligent watch box was expected to be available for sale during 2026.²

WHY IT MATTERS

A perpetual calendar is one of the most technically demanding complications in watch-making. It tracks the day, date, month, leap year, and moon phase, automatically adjusting for the varying lengths of months for decades without manual correction. The problem comes when the watch stops: resetting all calendar indications to the correct position requires a precise sequence of adjustments that risks damaging the movement if performed incorrectly. For collectors and after-sales departments alike, this has been a persistent usability barrier for one of horology's most admired complications.³

Dubai Future Labs brought robotics, computer vision, and AI engineering to a problem that the Swiss watch-making industry had left unsolved for decades. The result is a UAE-designed system that operates at the highest end of precision manufacturing, in a domain where tolerances are measured in fractions of a millimetre and production volumes in hundreds.

HOW THE TECHNOLOGY WORKS

The watch is placed inside the intelligent watch box and the lid is closed. Computer vision identifies the current position of every calendar indication on the dial and calculates the adjustments required to bring each one to the correct date, day, month, and moon phase. A motorised arm then engages the crown, performing the precise sequence of winds and corrections in the safest possible order to protect the movement.⁴

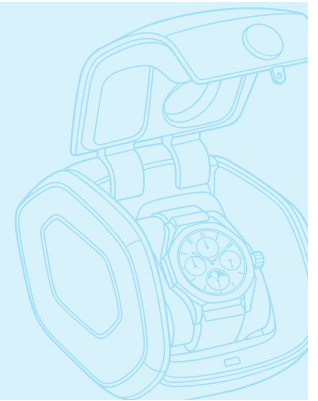
The box is designed specifically for Audemars Piguet's Calibre 7138, the self-winding perpetual-calendar movement inside the 41 mm Royal Oak Perpetual Calendar, introduced in 2025, which routes all corrections through a single crown rather than requiring separate pushers or correctors on the case band. This mechanical innovation made the robotic interface possible: a single point of contact for all adjustments. Dubai Future Labs designed the robotics, sensor integration, and software architecture, while Audemars Piguet provided the horological engineering and movement specifications.⁵

**2
YEARS**

of joint development between
Audemars Piguet and Dubai Future Labs

**1st
OF ITS KIND**

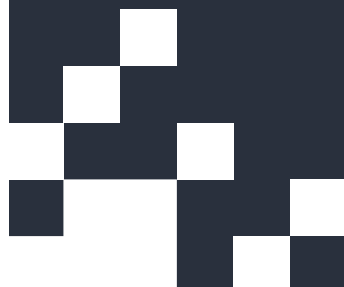
unveiled at Dubai Watch Week



IMPACT AND RESULTS

The intelligent watch box is a working prototype, not yet a commercial product. Its impact is best assessed as a proof of concept that demonstrates three things. First, that UAE-based robotics and AI capability can deliver precision engineering solutions for one of the world's most demanding luxury manufacturers. Second, that Dubai Future Labs's applied research model can move from government and infrastructure projects to commercial partnerships with global brands. Third, that 4IR technologies can create value in ultra-high-end manufacturing where the challenge is not volume but precision, reliability, and the integration of digital systems with mechanical craft.

The unveiling at Dubai Watch Week 2025, attended by the global horological press and collector community, generated significant international media coverage and positioned Dubai as a credible partner for precision technology development at the highest level of manufacturing.⁶





WHAT'S NEXT

The intelligent watch box is expected to become available during 2026, with pricing and distribution still to be announced. The opportunity is to turn this from a one-off solution into a sustained applied research partnership. That precedent is well established in Switzerland, where public research centres such as CSEM and EPFL's Institute of Microengineering have worked for years with Patek Philippe, Rolex, Richemont, and the Swatch Group on the silicon components and micro-mechanisms behind modern high-end watches.⁷ For the UAE, the opportunity is larger still: Dubai Future Labs has entered this territory from outside the traditional watch-making world, and if the model scales it could establish Dubai as a credible partner for precision robotics across luxury manufacturing, medical devices, aerospace components, and other domains where micron-level accuracy and digital-mechanical integration are critical.

"The idea of creating a setting mechanism for the Perpetual Calendar has been a part of Audemars Piguet's vision for years. The innovative all-in-one crown of calibre 7138 has made that dream possible, thanks to a cross-disciplinary collaboration with the Dubai Future Foundation," said Lucas Raggi, Chief Industrial Officer at Audemars Piguet.⁸

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