07.June 2022

Elire Group collaborates with Microsoft on a trial for long-term archival storage of music collections using glass

Elire Group, with Global Music Vault, is dedicated to sourcing, safeguarding, and celebrating the world's most valuable music, where the mission is to pass on the world's music to the next generations forever.

Microsoft is using recent discoveries in ultrafast laser optics and machine learning to store data in glass. Their research project, 'Project Silica', is the first-ever storage technology designed and built from the media up, specifically for the cloud. Elire Group has collaborated with Microsoft to create a dedicated Proof of Concept (PoC) glass platter, where a sample selection of some of the world's most important music data and files is curated, ensuring it is stored in the platter for posterity.

Did you know that today's solution for storing music data is facing a multitude of challenges?

To date, tape technology has been the most commonly used storage medium, with little innovation over the years. Silica's inertness means that its impact on the environment and need for costly environmental controls are significantly reduced. Its long lifetime and resilience to degradation of the media and data are also key to reducing cost of ownership

The music data and related files resulting from the Global Music Vault initiative are envisaged to run into the many tens of petabytes per year (a petabyte is 1000 terabytes) requiring preservation of this precious music for posterity. Silica is well-positioned for this need, with a data lifetime of many thousands of years.

'Project Silica' is well on the way in its research into long-term, resilient archival storage. The research team at Microsoft, Cambridge UK is working on paradigm-breaking solutions in ultrafast laser optics and machine learning, to provide the world with phenomenal storage capability using fused silica glass. Project Silica is part of the broader Optics for the Cloud project, which explores the future of cloud infrastructure at the intersection of optics and computer science.

With glass being a very inert material, the silica glass platter is fully resilient to electromagnetic pulses (EMP), and to the most challenging environmental conditions. It can be baked, boiled, scoured, flooded, subjected to EMP and in other ways attempted to be tampered with, without degradation of the data written in the glass.

The PoC platter is the size of a glass coaster, being 75x75x2 mm, with 100GB of data in any digital format, encrypted or unencrypted. A laser encodes data in glass by creating layers of three-dimensional nanoscale gratings and deformations. Machine learning algorithms read the data back by decoding images and patterns that are created as polarised light shines through the glass.

Global Music Vault uses a dedicated vault, exclusively for music capsules, located deep inside the same arctic mountain location as the Global Seed Vault (Doomsday Vault) on Svalbard in far north Norway. Here master music files and irreplaceable music data are to be preserved in music capsules, protected in the vault and remembered for eternity.

Luke Jenkinson, Managing Director of Global Music Vault, explains that they made contact with Microsoft after following the developments of Project Silica work for several years.

- With over 4 million music producers globally, and over 60,000 songs being released just on Spotify every day, today's digital and physical data storage solutions are quickly becoming outdated, irrelevant and a risk to our future. We not only want to put this high on the global music industry agenda, we want to work with the best companies in the world to find solutions. As we want to offer the global music ecosystem an eternal solution, we believe that Microsoft's Silica is that exact solution for our storage needs, says Jenkinson.

He adds that the PoC will contain music and audio/visual contributions from the likes of pioneering innovator and artist **Beatie Wolfe [UK]**, International music award **Polar Music Prize [Sweden]**, **Alexander Turnbull Library (part of the The National Library of New Zealand) [NZ]** and **International Library of African Music (ILAM) [South Africa]**. The **International Music Council (IMC) [FR]**, one of the Global Music Vault's founding partners, has also contributed by adding even more diversity to the PoC. IMC facilitated the inclusion of material by two Music Rights Awards laureates, the **Orchestra of Indigenous Instruments and New Technologies (Argentina)** and **Fayha Choir (Lebanon)**, as well as from **Ketebul Music [KENYA]** , Kenyan organisation led by IMC Music Rights Champion Tabu Osusa.

Jurgen Willis, Vice President, Program Management, from Microsoft commented: *"In this Proof of Concept, Microsoft and Elire Group worked together to demonstrate how Project Silica can*

help achieve the goal of preserving and safeguarding the world's most valuable music for posterity, on a medium that will stand the test of time, using innovative archival storage in glass."

Parallel with the work on the Proof of Concept, the Global Music Vault has commenced a global campaign titled 'Project ARV'; a callout to the regions of the world encouraging to gather musical expressions to safeguard and celebrate forever.

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