



## St. George's Hall leads the way towards new Digital Heritage with the help of the Virtual Engineering Centre

### BACKGROUND

The Virtual Engineering Centre has completed a pilot project with St George's Hall to create a life like digital copy of the historic and beautifully preserved Minton floor. The project is a powerful demonstration of the potential for Digital Heritage in the Liverpool City Region, as a way to help our museums and galleries innovate in a post-COVID world.

St George's Hall in Liverpool is a Grade I listed building, opened in 1854, it stands gracefully in the centre of Liverpool, attracting thousands of visitors to the city every year through tourists, corporate events, weddings and even serving as the backdrop for numerous Blockbuster films and famous TV shows.

St George's Hall is home to 30,000 handcrafted individual Minton tiles, creating a beautiful and well-preserved floor that is revealed to the public only once a year. The tiles collectively create imagery of the famous Liver Birds, Roman god Neptune, sea nymphs, dolphins and tridents.

At the time of construction, it was the largest Minton pavement to be created in the world and is still considered one of the city's most beautiful hidden gems.

Councillor Gary Millar, Deputy Mayor of Liverpool wanted to initially explore a variety of options for two new statues for St George's Hall, with two local historical females in mind. After approaching the local board, discussions led to how innovative digital tools could be used to capture the well-preserved floor, allowing more visitors to see the unique design, whilst preserving the tiles. The University of Liverpool volunteered to help through its Virtual Engineering Centre's unique expertise and innovative digital facilities.

### THE CHALLENGE

The Virtual Engineering Centre had a limited time frame of roughly one week for the collection of abundant photographic evidence and images in order to create a clear and concise 3D scan of the Minton flooring, without interrupting or disturbing St George's Hall busy schedule for events and guests.

Once the thick and protective wooden covering was lifted, the 3D scanner would need to be carefully and strategically positioned in order to capture the entirety of the flooring, whilst ensuring footfall and weight on the tiles was minimal.

## THE SOLUTION

Over four days the VEC carefully manoeuvred their Time of Flight 3D scanning technology around the space to ensure the entire hall was successfully captured including a 2.3 billion part-cloud of points, each point containing precise position and colour information.

Using this unique data in addition to 1,200 high-resolution digital images of the flooring and tiles, the VEC used a photogrammetric process to produce a digital geometric 3D model of the room and Minton tile flooring. The accuracy of the data captured enabled the model to show the detailed flooring within 1mm scaling, allowing the final result to be as precise to the physical floor as possible.

The results of these two processes were then combined to create an innovative and engaging simulation of the tiles, using the VEC's unique in-house expertise and capabilities.

## THE BENEFITS

As a result, the digital asset created can be used remotely, allowing for more people to explore the tiles through digital demonstrations, promoting St George's Hall and the heritage sites of Liverpool and the UK.

The digital asset can also be placed on digital platforms including websites, allowing for access to the tiles from all around the world via digital tours, increasing awareness and interest.

This technology can allow for St George's Hall to create a digital and very realistic historical record of the Minton tiles, which can be kept for many years to come and could become of real interest to historians.

Eventually St George's Hall could project this simulation of the rarely exposed Minton flooring, over the wooden protective covering, enabling more guests and visitors to enjoy the beauty of the preserved tiles as realistically as possible and within St George's Hall itself, without the need for exposing the tiles and risking damage.

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“ St George's Hall is looking to establish and subsequently develop a digital interpretation of its Neoclassical Greek-Romano building and has collaborated with the University of Liverpool to be able to digitally record the magnificent Minton Tiled Floor of the Great Hall.

*This digitisation of the Minton floor, which is under protective covering for most of the time, will enable us to present the floor digitally to visitors whenever the opportunities arise – thereby, significantly increasing the opportunity visitors can have to see the Minton floor in its normal surroundings. The cost of digitising the floor can be up to £20,000 and the support in kind St George's Hall has received from the University of Liverpool has been outstanding.*

*Our aim is to develop the necessary infrastructure to digitally present the floor soon, enabling modern technology to be used to interpret a classical historical venue ”*

Alan Smith, General Manager of St George's Hall

## NEXT STEPS

The VEC is looking forward to working with St George's Hall and the region's galleries and museums to develop a roadmap for how the city could develop a digital heritage ecosystem, creating new ways for heritage sites to open up their assets and work to create new industries and supply chains under LCR4.0 Holistic, an ERDF funded project the Virtual Engineering Centre lead on.

