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Match that

When the city of Lima confirmed the renovation of the Peru National Stadium, part of the brief was for an innovative lighting scheme to be introduced

As such a prominent build, the foremost wish was for it to be an iconic structure with a recognisable design in keeping with the mood and passion present at any football match. The creative team consisted of Claudia Paz of CAM; Cinimod Studio; and David Castañeda of Traxon. These masterminds each brought a fundamental element to the concept of the building's interactive frontage.

Drawing on inspiration from the fast-paced changes in mood ever-present at a game, the team brought together pioneering technologies and lighting layouts to lace the facade with a mix of dancing LEDs. The scheme acts as a mirror, reflecting the mood of the audience as the fans collectively flow through emotions of excitement, boredom, disappointment and celebration; to mesmerise passersby.

Paz and Castañeda constructed onsite mock-ups, having undertaken a series of design studies, which were used to prove the merit of the system to the client. Once the system was agreed, the team was given 100 days to complete the implementation, in order to meet the Presidential inauguration of the stadium. The tight time constraints meant that all hands were needed on deck with Traxon producing customised fixtures, and E:Cue developing the mapping and content. Meanwhile Cinimod tested hardware solutions and software algorithms as they were made.

The main obstacle for Cinimod during the project was developing a bespoke, reliable solution to deliver the ambitious scheme effortlessly. This blockade was broken down by the utilisation of a transfer of technologies from related industries, which enabled the company to create a cutting-edge mood analysis system for the stadium project.

Incorporated within the scheme is a network of customised sound level meters, which are placed along the roof line of the stadium to create a dynamic map of the crowd's noise levels. This data is processed by Cinimod's hardware and software located in the main communications room of the stadium.



Also developed specifically for the project was the company's mood analysis software, used to process the sound level data in real-time, performing a series of comparative mathematical calculations and analysis by self-calibrating algorithms. The output from the software is a 'mood state' that summarises the collective mood of the crowd. This ingenious software runs perpetually, constantly evaluating the mood. It communicates the determined mood state to the E:Cue lighting controller, which then sends the relevant DMX control signal to the light fixtures.

The lighting patterns have been carefully designed to accurately depict these moods. The patterns vary in colour, speed, brightness and scale – the façade can be seen to dance with joy and celebration, or recoil into a subdued and disappointed state.

Initially the equipment was tried beside a railway line to monitor its reaction to noise. Yet the ultimate test was at a match which took place at the Emirates Stadium in London. It was here that designers were able to breathe a sigh of relieve as the mood analysis worked as hoped, and the system was sent to Peru to be installed.

The external scheme was constructed to be seamlessly integrated within the architectural framework, while providing the required media framework to display lighting patterns. The

majority of the lights were laid out in fans of 'flames', which wrap upwards around the bulbous form of the structure, in order to work alongside the design of the frontage.

At such a large scale, the scheme necessitated an impressive array of colour and pixel addressable fittings. All of which are from Traxon Technologies, whose focus is high quality architectural LED lights. An E:Cue architectural lighting controller was linked to the LEDs to provide the required 62 universes of DMX lighting control output.

Cinimod's interactive mood analysis and the E:Cue lighting control system make up the two integral components of the system. They each work in tandem to deliver an ever-evolving and responsive lighting display on the façade.

Eking out all that's great about the quick-paced changes within the embryonic industry, this stadium is a true celebration of the endless possibilities and the wonder to be achieved with the use of light. ■

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