

website at www.optimusic.com

units to order. You can find out more by visiting their team have acquired premises where they make OptiMusic television playing music using OptiMusic. Since then the and not long after, Guy's dance troupe appeared on Tomorrow's World, who were very interested in the product people about it. Guy contacted the research team at Now that they had a working prototype they needed to tell


4 exposure

Guy and Andy spent many evenings over 12 months solving these problems; both of them were involved in other daytime work and the development of OptiMusic was driven purely by the designers' enthusiasm and personal interest. Imagine the excitement when they had a sound produced as a direct result of reflecting the light beam onto the sensor after a year of researching and developing the product! The designers wanted to protect all of their hard work and so patented their idea. This meant that they were legally protecting their idea from anyone else copying it.

3 10% inspiration 90% perspiration

Guy Sigalov



research 

Visit this website for help www.patent.gov.uk and use the Newcomer's guide, with a list of frequently asked questions, to find out the difference between a patent and a copyright.

ds 8 designing optimusic

OptiMusic started as a dream where dancers would create music by dancing through light beams - 'Movement makes the music'. The person who had the original idea for the project, Guy Sigalov, is a classically trained musician who has a great interest in technology and the creation of music. He has also been involved in choreography. The inspiration for OptiMusic came from two places:

- Working with a choreographer, writing music for a dance routine.
- Watching Top of the Pops and seeing bands entertaining the audience musically, but not visually.

He awoke in the middle of the night with the idea of a band of musicians breaking light beams to create their music. This would make the stage show visually more exciting.

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DESIGNING



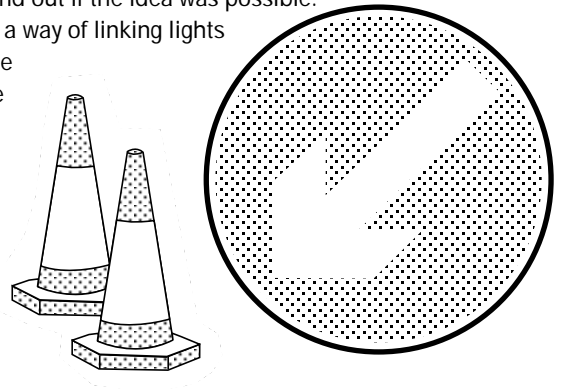
1 turning the dream into reality

Identifying the problems

Guy contacted an electronics engineer and fellow musician, Andy Park, to find out if the idea was possible. Once it was established that it could happen, the two designers had to find a way of linking lights and sound. How could a light beam create music? The idea was to reflect the light to 'hit' a sensor that would change the light into a signal that would be sent to a sound generator.

There were three problems to solve:

- What electronic components could sense light?
- How could the light be reflected to 'hit' the sensor?
- What could link the light sensor and the sound generator?



Inspiration can come from the most unexpected sources



The OM1 Optimusic controller recognises the signal from the light sensor and transmits a message to operate the keyboard

2 finding the solutions

Sensing

The sensor used obviously had to be light sensitive. The two options were a light dependent resistor (LDR) or a phototransistor. An LDR responds too slowly so a phototransistor was used.

Reflecting

The light had to be reflected exactly onto the sensor every single time for the sound to be made. They tried using a mirror, but the light couldn't always be directed onto the sensor every time. An ordinary mirror wasn't accurate enough. They had to look for a different material.

Inspiration came from an unusual place. Cat's eyes had always fascinated Andy. These work by reflecting the light directly back to its source. This inspired them to go looking for a similar material. Road signs work in the same way. Light from car headlights hit the sign and the sign is reflected straight back to the car.

By talking to lots of people Guy was able to find some of the same material which is called 'retro-reflective' material. This material is used on cones and reflective safety jackets. They tested it out and it worked every single time providing the sensor was inside the unit that held the lamp.

Linking

Andy wrote some computer software that would recognise the signal from the sensor and send it to a MIDI keyboard that would generate sound.

activity

Try reflecting a light beam from a torch onto a mirror so it hits a 10p piece that is stuck to the wall. Once you have succeeded turn off the torch and then back on and try again. Is it easy? Can you explain why Guy and Andy couldn't use a mirror.