CREAT3D
ADDITIVE MANUFACTURING SOLUTIONS PROVIDER

CREAT3D
CASE STUDY

Fastlane Turnstiles transform their entire business workflow with Additive Manufacturing to deliver bespoke high-quality security systems

THE CHALLENGE

Delivering highly bespoke products to clients featuring rapidly evolving technologies.

THE SOLUTION

Embedding the Markforged Mark Two 3D printer into Fastlane's Engineering Design team has centred the technology at the heart of the business, with applications and uses snowballing across all departments.

Examples of Fastlane's entrance security systems

THE RESULTS

As a result of embedding the Markforged Mark Two, Fastlane have completely re-defined their business processes, from sales, to quoting and pre-production, through to design, production and assembly, with a direct result on their clients being able to receive more tailored solutions, and faster.

- Engineering Design have changed the design workflow, to foresee any production issues before client sign off
- Clients receive more tailored, and previously unattainable products through bespoke 3D printed end parts
- R&D has more freedom to experiment with design & develop new products, faster and at lower cost
- Production processes are defined before a project starts with any custom jigs, tools, mounts and production line fixes 3D printed immediately

Fastlane Turnstiles integrate the Markforged Mark Two Composite 3D Printer

Markforged

CREAT3D
ADDITIVE MANUFACTURING SOLUTIONS PROVIDER

CREAT3D
CASE STUDY

> Entrance control products are constantly evolving, and Fastlane are best positioned to deliver the unique requirements for each client by tailoring the end product through using Additive Manufacturing.

ABOUT FASTLANE

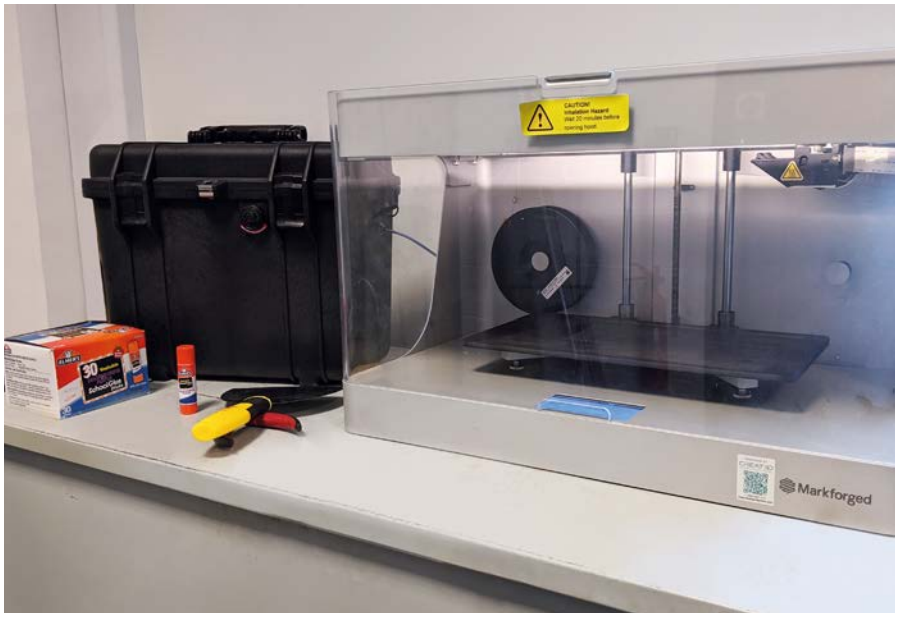
Fastlane Turnstiles is a brand of pedestrian entrance control, wholly owned by Integrated Design Limited (IDL), which was formed in 1985. Based in Feltham, near Heathrow, IDL has its own manufacturing premises and HQ onsite which is further expanding in 2021.

IDL design and manufacture high end security products and solutions for entrance control of buildings. The company's key brands, Fastlane Turnstiles and Door Detective (anti-tailgating products), help to secure a large number of the world's most notable and highest security buildings. IDL has a global range of clients in Banking & Financial, Education, Utilities and Healthcare facilities, including Facebook, Dell, Microsoft, Google, Fidelity Investments, Uber and Adobe.

Entrance control products are constantly evolving, and Fastlane are best positioned to deliver to the unique requirements for each client by tailoring the end product. With over 70% of Fastlane's end products featuring a bespoke element, this is where Additive Manufacturing plays a key role:

"One of reasons we use the Markforged 3D printer is to enable us to develop and manufacture elements to integrate bespoke card readers, tokens or biometric systems into the end product. This speed and adaptability to integrate is important to us because we specialise on the aesthetic of our products."

Tony Smith,
Marketing Manager



The heavily used Mark Two located in the Engineering office

CREAT3D
ADDITIVE MANUFACTURING SOLUTIONS PROVIDER

CREAT3D
CASE STUDY

THE CHALLENGE

Bespoke design requires a highly tuned workflow

Fastlane operate in a constantly evolving industry, with security products developing at a fast pace, with new advancements in identification processes. Over 70% of Fastlane's end products have a bespoke element to them, including tailored aesthetics. Whilst core components cross-over in the range of entrance systems, there is a huge requirement to integrate different card readers, tokens or biometric systems into the end product to generate a personalised aesthetic and function. As a client's identity becomes even more unique and important, so does the need to have branded and unique access control systems designed to match.

THE SOLUTION

Integrating Additive Manufacturing into Fastlane's workflows has enabled the team to develop and maintain a competitive advantage. Many competitor solutions use mass-produced or off-the-shelf products, without the adaptability to create bespoke products for clients.

As a result of using the Markforged Mark Two, Fastlane have completely re-defined their business processes, from sales, to quoting and pre-production, through to design, production and assembly, with a direct result on their clients being able to receive more tailored solutions, and faster.

AM is now involved right at the beginning of design and production process at Fastlane. Tony explains "Before we used to estimate a product and do an outline drawing for customer approval. Now we do the full design brief, so we know the design we are going to make and how we are going to make it before we offer it to the client for approval".

This change in workflow ensures that Fastlane can be sure they can deliver a high quality, bespoke product to the client and quickly. Upon receiving the initial design specification, concepts will be iterated and sent to the client for approval. As part of the iteration process, the design is sent to Production to set the production processes, whereby any requirement for components, mountings or jigs are 3D printed in advance.

"The good thing is because we have completed the full design up-front, with all the componentry, parts for assembly and have assembled a test part, we understand what is required to produce the part. When it does come to production there are a lot less issues we need to sort out. In the past, we would have seen more problems in production, time lost with shipping delays or component fitting which would have compounded, but now this is all addressed beforehand"
Mike Lau, Technical Manager

This efficient and comprehensive workflow allows Fastlane to build to order within 8 to 10 weeks.

THE RESULTS

The applications for Mark Two have snowballed

The Mark Two 3D printer is located in the Engineering Office, with the Engineering and Design teams having continual access to the technology to respond to client design briefs and develop new products, and for the production teams to send requests for the development of production aids. The ethos of the company is for everyone to work very closely together, which means that changes can be made rapidly and departments can react very quickly.

The initial reason for purchasing a 3D printer was for R&D. Fastlane wanted to improve internal processes, reducing costs and increase the speed of development. Surface finish and strength were important criteria in selecting the right type of Additive Manufacturing equipment, and working closely with CREAT3D, the Markforged 3D printer was recommended and selected.

Now, the range of applications has snowballed, and Fastlane have seen huge time & cost savings.

"The Markforged has changed the way we design. There are now no limitations. In the past we have been constrained by the traditional methods of manufacturing of machining, turning and sheet metal, but with Additive Manufacturing, it's really changed the way we think about design and what is achievable"
Mike Lau, Technical Manager

CREAT3D
ADDITIVE MANUFACTURING SOLUTIONS PROVIDER

CREAT3D
CASE STUDY

Bespoke end components

One client wanted to integrate Hitachi's USB Finger Vein Biometric Authentication Unit into their entrance control systems, to take a biometric scan of the user's finger print to grant access. As the product itself was newly developed, there was no existing way to mount the unit to the turnstile.

By fitting a 3D printed housing, Fastlane were able to manufacture a complete set of entrance systems using the unique access control, that previously could not have been manufactured. The part was produced in Onyx material (Nylon with micro carbon fibres) which is both functional and aesthetically pleasing.

Bespoke End Product: Finger Vein Housing

Traditional Fabrication
This product was cost and time prohibitive to manufacture.

Using Additive Manufacturing:
A bespoke housing was 3D printed in Onyx and fitted to the end turnstile. No additional finishing required.
- Production time > 12 hours
- Production costs > £10 per unit

Faster R&D

Using the Markforged 3D printer allows the Engineering Design team to experiment with design, developing iterations rapidly at reduced costs and timescales. Carbon Fibre is commonly used in R&D parts, especially in components attached to moving parts, or clamps & shafts that require strength from the reinforcing fibres. The parts are 3D printed and validated, before proceeding to tooling.

R&D projects designed to develop product and check fit and functionality are now achieved a lot quicker, removing the need to manage external suppliers, and keeping knowledge and proprietary information in-house.

R&D of a Rotary Part

Traditional Fabrication
This would previously have been outsourced, machined out of steel with a one-off cost of £300 on a 2 week lead time, with restrictions to the part design because of the method of manufacture. Once the part was received, it would need to be checked and validated.

Using Additive Manufacturing
Changing the part development to in-house on the Markforged, Fastlane are able to print the part in under 4 hours, at a cost of £10, with no post-processing. If iteration is required, it can be immediate, providing a low cost of failure

CREAT3D
ADDITIVE MANUFACTURING SOLUTIONS PROVIDER

CREAT3D
CASE STUDY

Streamlined Production

Fastlane's production teams are sending requests for the development of production aids to be 3D printed, including mountings, jigs and assembly components. Integrating Additive Manufacturing has enabled Production to manufacture and ship to deadline and reduce delays caused by the reliance on third party suppliers or incorrectly fitting parts.

Positioning Jig

Traditional Fabrication
Flat cut, Aluminium Steel. £150 for machined part, with lead time of approx. 2 weeks. User positioned by eye.

Using Additive Manufacturing
The Engineering Design team re-designed the flat jig to include a locating edge, fitted to the exact geometry of the glass wing door.

- Lead time reduction of 2 weeks to 6 hours (96% reduction)
- Cost of £6.74. Reduction of 95.5%
- Achieve right-first-time application with 100% accuracy

Bespoke parts at a reduced cost, with enhanced design and production workflow

Having integrated the Markforged Mark Two into Fastlane's products, there have been a multitude of benefits; the workflow from design to manufacture is faster, leaner and more efficient, Production are receiving aids quicker, the Sales Team have more scope to tailor client projects and clients are receiving unique products.

The future of Fastlane's products and solutions will continue to evolve, with Additive Manufacturing at the heart. The immediate future will see a continuation of bespoke end components and batch production of parts, continuing to support Production and Design Teams. The use of AM for 3D printing metal components and moulds will also increase. "We can print really complicated components to check feature, fit and function. The 3D printer allows us to move away from traditional sheet metal, to bespoke components in other methods of production such as casting", Mike Lau, Technical Manager.

CREAT3D

CREAT3D Ltd
Additive Manufacturing Solutions Provider

CREAT3D offer Additive Manufacturing end-to-end solutions and are a fully certified Markforged Value Add Partner, Service and Support provider.

520 Eskdale Road, Winnersh Triangle,
Wokingham, Berkshire, RG41 5TU

T: 0800 689 1011 | E: info@creat3d.co.uk
W: creat3d.shop
LinkedIn: /company/creat3d-ltd
Twitter: @CREAT3Dprinters

FASTLANE

Fastlane Turnstiles

Integrated Design Limited
Feltham Point, Air Park Way, Feltham,
Middlesex, TW13 7EQ

W: www.fastlane-turnstiles.com
T: 0208 890 5550
E: info@fastlane-turnstiles.com
Linkedin:
company/integrated-design-limited