Setup options for: Body projection mapping

For Hybrid festivals

What is body projection mapping?

To get started right away, just tap any placeholder text (such as this) and start typing.

Body projection Mapping can be done in many different ways, but in order to find out what the best possible solution is for the projections, I researched the best, good and bad practices. This gave me insights on what the possibilities and limitations of body projection mapping are, in regard to what I can achieve during this internship.

There are three different ways to map out projections on the body and in this document, you can see how I compared these three executions and picking out the best possible solution. Next to the best possible solution I also found out what I can use for my personal prototype.

Conclusion:

The best possible solution is also the most expensive solution, but this would then be some advice for future hybrid festivals. Other than being the most expensive option, it is also the industry standard when it comes to body projection mapping.

Next to the best possible solution, I also found out that the second most expensive option can work pretty well for small scale venues or festivals.

Think of it as a Snapchat lens but then it is projected on the performers with a projector. This can be done with "Body Projection Mapping", which is a technique that projects animations on top of a person, and the projection moves along with the person as well.

How could I recreate this?

To project on top of a person, the projector needs to understand where to project. This can be done with a simple camera in combination with body detection software. Once the software understands where the person is in relation to the projection, it can neatly cut out the shape of a live performer.

"Enhance the emersion"

This project requires numerous devices to get the projection just right. Once the set-up is placed, it will need to be calibrated and adjusted in order to line the projection up with the performers.

This body projection mapping can be done in many different ways, this document will explain the three different executions for this project.

The three executions differ in price, quality of the projection, and the delay between the projector and the real-life scenario. Kinect Set-up | RealSense Set-up | Panasonic Dream Set-up

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Kinect Set-up

This set-up uses 10-year-old technology called the Kinect in combination with a relatively affordable projector in order to project these body projection mappings. The entire set-up is easy to setup and calibrate for a small venue and cannot be scaled up for larger venues.

Total expenses:

- Kinect V2 150,-
- Projector 1.229,-

Kinect V2 (150.-) Technical requirements:

- Kinect V2 (Sensor)
- Projector (any long-throw projector)
- Object detection software
- Processing
- Two tripods for both the Kinect and the Projector

Pros   ## Cons

Pros	Cons
Easy to set up and requires little to no programming skills.	The projection has a large latency which looks quite choppy and un-synced
Easier to prototype and iterate on	Very short sensor range. Max 2 meters.
Easy to transport	The projection area is quite small for a stage
Relatively cheap	Can only project on to one performer

Realsense Setup

The Kinect is more for small-scale venues or a bar/café event, that is where the Realsense sensor comes in. This setup can be used for larger venues and is faster and more accurate in every aspect.

Technical Requirements:

- Realsense D455 (Sensor)
- Panasonic 120hz 4K Laser projector
- PC with the latest graphics cards and processor
- Tripod for the Realsense Sensor

Total expenses:

- Realsense D455 499,-
- Laserprojector 1999,-/4999,-

Pros	Cons
Very accurate sensor	Expensive sensor
Can project up to 5 performers	Requires moderate programming skills
Easy to use and program in Unity	Can be obstructed by fog and lighting

Panasonic Dream Setup

This is the ideal setup that can execute the body projection on large and precise scale, hence the title "Panasonic Dream". The combination of high fidelity and wide range of this projection, makes this prototype quite expensive.

 Total expenses: 50.000,-
With an additional yearly licensing fee of 2000,-

Technical requirements:

- Projector
- Infrared emitter
- Infrared capable camera

Total expenses:

- Panasonic et-swr10 49.999,-
- Annual fee of 1999,-

Pros

Cons

Pros	Cons
Very accurate sensor positioning	By far the most expensive option 50.000 + 2000 annual fee
High resolution with very sharp details and colors	Needs to be with collaboration with Panasonic
Software that utilizes the infrared emitter and the infrared capable camera with many built in functionalities	The software can be limited