Smart mirror for virtual fitting

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1. Motivation



Hard to choose clothes

How can we save this time?

Recommend with Smart Mirror

- Provide Virtual Fitting
- Easy to choose or purchase

'Mobile Shopping Trend Report 2020' by Mobile Research Open Survey

프라인 구매 이유	Gap	남성 (382)	여성 (411)	20대 (271)	30대 (257)	40EH (265)	
							(vs. 19년)
상품을 직접 착용/확인할 수 있어서	76.0	-0.2	73.8	78.1	77.5	74.7	75.8
배송/운반이 빨라서/편리해서 28.4		-3.8	27.7	29.0	31.0	31.1	23.0
편리해서 24.5		+0.6	24.3	24.6	24.7	23.7	24.9
쇼핑경험이 좋아서 183		-0.4	19.9	16.8	14.8	17.9	22.3
안전성에 대해 신뢰할 수 있어서 9.1		+2.0	7.6	10.5	12.9	5.8	8.3
고객서비스가 좋아서 📉 8.4		+2.6	9.7	7.3	8.5	9.7	7.2
상품구성이 좋아서 _ 7.6		+1.8	7.1	8.0	6.3	7.4	9.1
가격/가치가 좋아서 _ 6.7		-0.9	5.5	7.8	4.8	7.0	8.3
결제가 편리해서 🚪 48		-1.2	6.3	3.4	4.1	5.1	5.3
엠버쉽 혜택이 좋아서 🛊 4.0		-0.7	4.2	3.9	4.1	2.7	5.3

[Base: 3개월 내 오프라인 채널 구매자, N=793, 순위형 응답(1+2순위), %]

2. Overview





Clothing Recommendation Service

- Musinsa store styling + User's clothes styling
- Clothing recommendation considering the temperature



Amount of clothes data

- 384 images

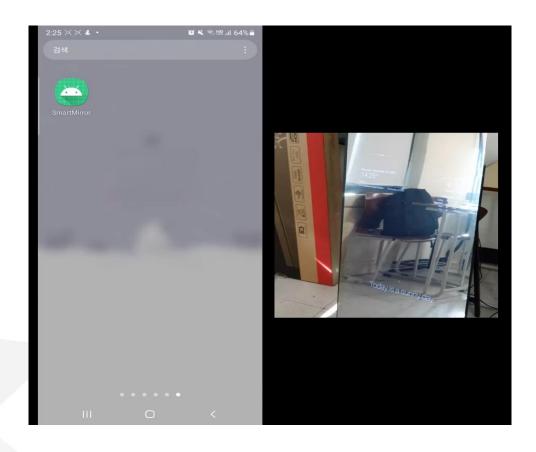




Smart Mirror 43-inch Display and Mirror

3. Project Demo





4. Key Features

Styling Button





4. Key Features













Smart Mirror

- 1. Get the user's upper and lower body coordinates by using haarcascade
- 2. Smart Mirror display the styling according to the user's coordinates

```
Python 3.7.3 (/usr/bin/python3)
>>> %Run socket_android.py
wait..
Connected by?! ('192.9.116.235', 65355)
http://52.79.59.24/virtualFitting.php?STYLING=dandy&ID=1
```

4. Key Features

Camera Button



Take a picture of the user's outfit

Remove background

Separate upper and lower body

Use **CNN models** to upload database

bottom_categories.h5		
bottom_fit.h5		
bottom_length.h5		
outer_categories.h5		
print.h5		
sleeve_length.h5		
top_categories.h5		

4. Key Features

Camera Button

Remove background

- 1) Edge detection using a structured forest ML model to do edge detection
- 2) Get an approximate contour of the object
- 3) Use OpenCV's GrabCut algorithm to get a more accurate contour

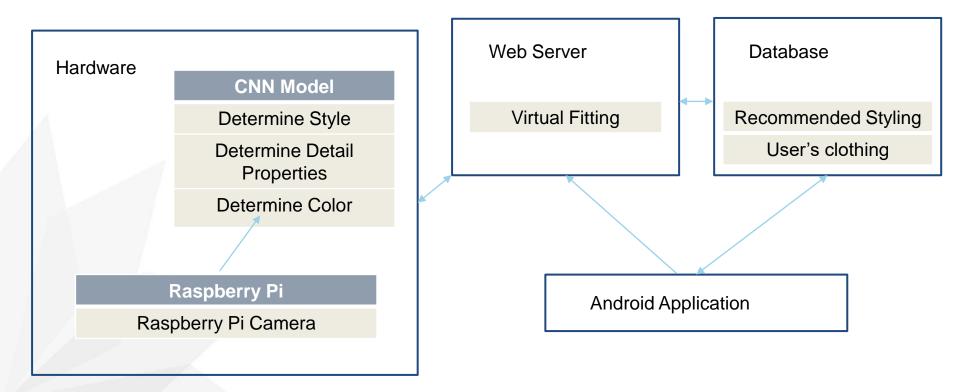




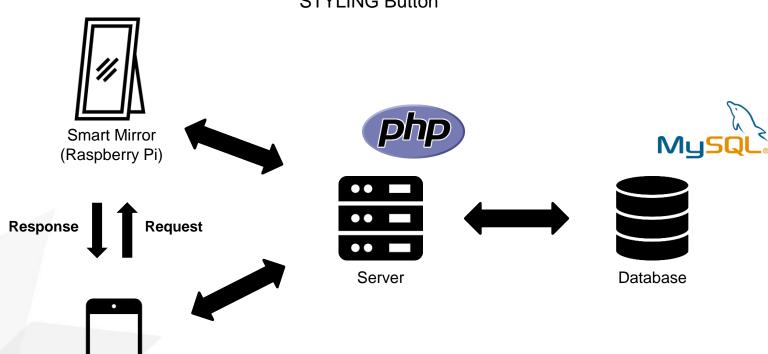




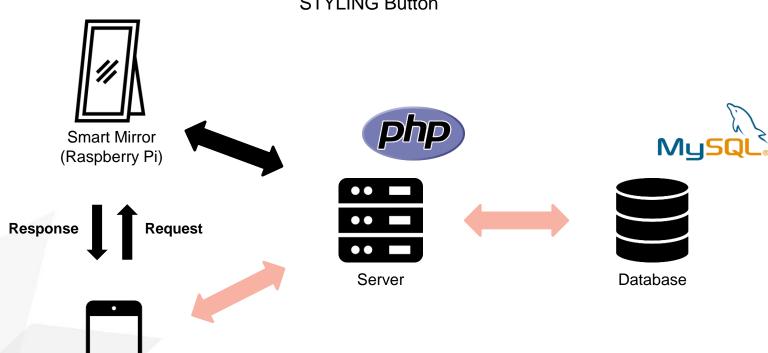
Hardware and Software System Diagram



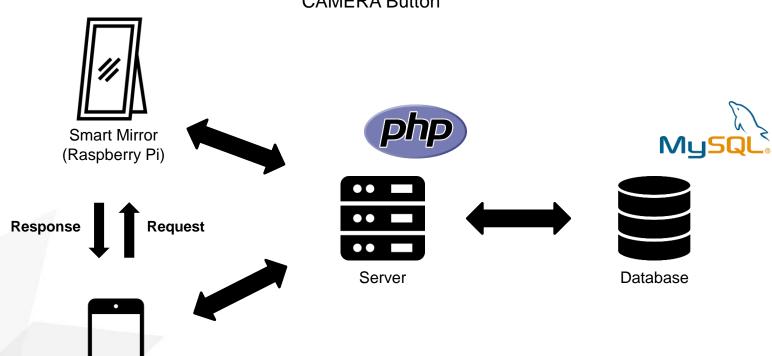
STYLING Button



STYLING Button

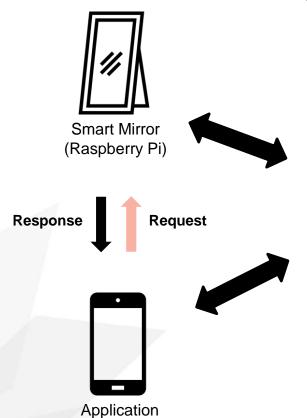


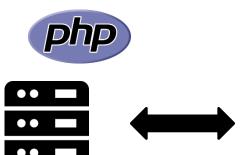
CAMERA Button



CAMERA Button

Server







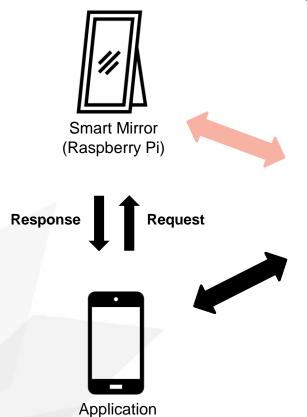


Amazon S3



Database

CAMERA Button











Database

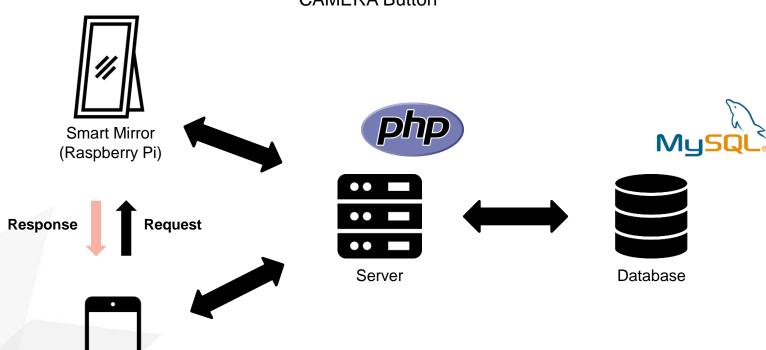
Image table

ID	image
1	https://smartmirror-bucket.s3.ap-northeast-2.a
2	https://smartmirror-bucket.s3.ap-northeast-2.a
3	https://smartmirror-bucket.s3.ap-northeast-2.a

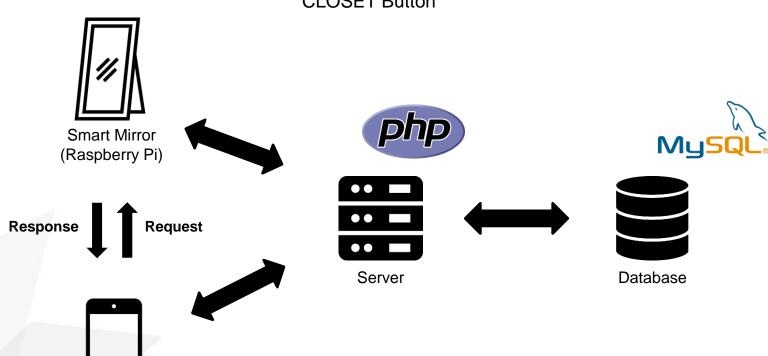
Information table

ID	category	sleevelength	color	print	temperature_section
1	맨투맨	긴팔	silver	스트라이프	3
2	맨투맨	긴팔	silver	스트라이프	3
3	민소매	민소매	white	스트라이프	1

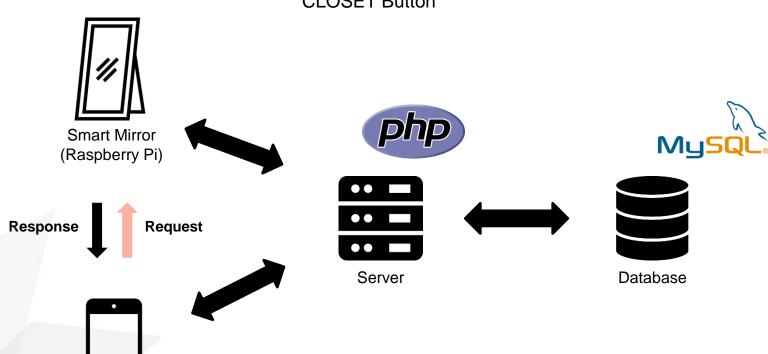
CAMERA Button



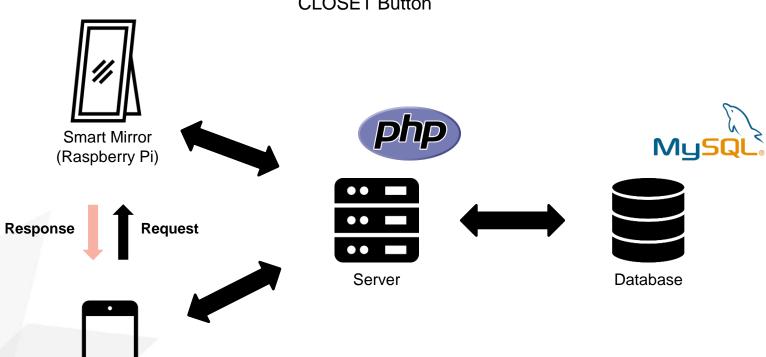
CLOSET Button



CLOSET Button

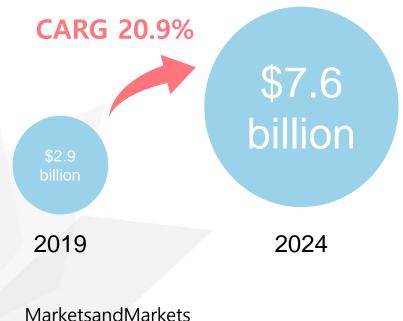


CLOSET Button

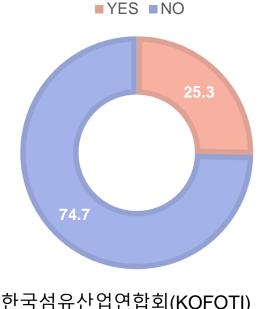


6. Marketing Plan

Market Research



Q. Do you have any experience with AR/VR based virtual fitting services provided by the brand?



한국섬유산업연합회(KOFOTI)

6. Marketing Plan

Market Research



Real Fitting is a service that allows you to try on glasses and sunglasses virtually and purchase them. Since the launch of the service in July 2020, the number of uses has recorded 430,000.



As the preference for non-face-to-face shopping is increasing, the future of virtual experience services is expected to be good.

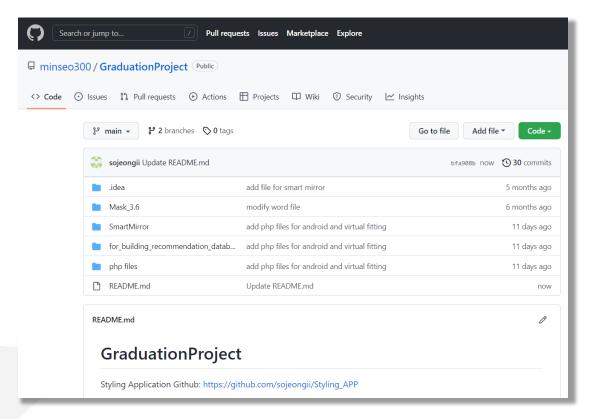


6. Marketing Plan

SWOT Analysis



7. Github & WIKI



https://github.com/minseo300/GraduationProject/wiki

WIKI

8. Role









Choi Hyeongin

OpenCV RasberryPi



Database Application Lee Sojeong

UI Remove Background

