


Biweekly Research Progress Report

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Period	:	Week 6~7	
WBS	:	실제 데이터 테스트 및 하드웨어 설계	

Research Results in This Biweek

● Conv_BoDiEs AI 모델 실제 데이터 TEST

Part 1 Conv_BoDiEs 실제 데이터 실험

Body part	size predicted [mm]	real size [mm]	Error [mm]
chest circ	1051.5	1045	6.49
waist circ	895.1	935	39.9
pelvis circ	1013.4	1060	46.6
neck circ	386.55	395	8.45
bicep circ	327.4	343	15.6
thigh circ	541.9	624	82.1
knee circ	355.84	408	52.1
arm length	495.11	475	20.1
leg length	748.1	740	8.1
calf length	383.93	410	26
head circ	534.29	580	45.7
wrist circ	148.98	173	2.4
arm span	1704.86	1720	15.1
shoulders width	370.5	460	89.5
torso length	452.26	510	57.7
inner leg	739.8	740	0.161

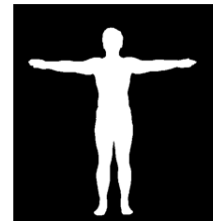
Gray scale data

최대 오차: 89.5[mm]
최소 오차: 6.49[mm]

Body part	size predicted [mm]	real size [mm]	Error [mm]
chest circ	1189.91	1045	144.9
waist circ	899.79	935	35.2
pelvis circ	1244.47	1060	184.47
neck circ	433.99	395	39
bicep circ	358.45	343	15.45
thigh circ	723.85	624	99.85
knee circ	487.39	408	79.39
arm length	608.22	475	133.2
leg length	777.84	740	37.84
calf length	422.04	410	12.04
head circ	633.05	580	53.05
wrist circ	201.42	173	28.42
arm span	2155.3	1720	435.3
shoulders width	440.54	460	19.45
torso length	432.72	510	77.27
inner leg	783.76	740	43.76

Binary data

최대 오차: 184.47[mm]
최소 오차: 19.45[mm]



Test data for binary

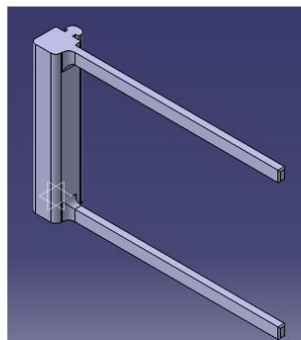
목표 오차: 4[mm]

● 3D 모델 프로그램을 위한 하드웨어설계

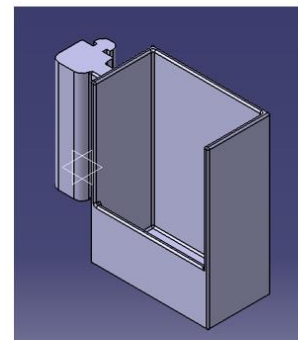
Part 3 하드웨어 설계 구상 및 3D 모델



스마트 미러 → 유리+필름



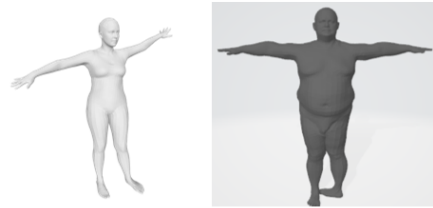
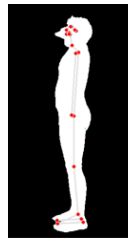
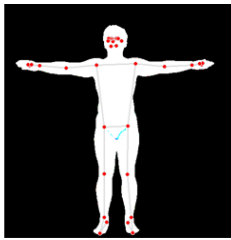
LCD 패널 고정 암



배터리 고정 암

● Key point 추출 알고리즘 및 SMPL 모델 테스트

Part 2 Key Point 검출 및 SMPL 모델 테스트



SMPL random model

SMPL 사용 환경 구축 → python 2.7

Body Part	X	Y
Left Shoulder	285	134
Right Shoulder	204	137
Left Elbow	345	140
Right Elbow	141	143
Left Wrist	402	137
Right Wrist	86	138
Left Hip	269	263
Right Hip	220	265
Left Knee	268	363
Right Knee	220	362
Left Ankle	276	452
Right Ankle	220	452

Front image

Body Part	X	Y
Left Shoulder	237	174
Right Shoulder	231	176
Left Elbow	223	159
Right Elbow	221	167
Left Wrist	219	136
Right Wrist	223	137
Left Hip	227	310
Right Hip	222	308
Left Knee	227	418
Right Knee	224	416
Left Ankle	236	520
Right Ankle	232	511

Left image



Mediapipe를 사용하여 keypoint 검출 테스트

Research Items in Next Biweek

- Key point 추출 알고리즘 완성
- BODYM dataset으로 Conv_BoDiEs 학습 결과 확인 및 비교

Issues and Overall Progress

- WBS progress : 40%
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