



[CJ대한통운] 로봇SA 경력직 채용 1차 면접

4/3(금) 09:00



VIRGINIA TECH
DEPARTMENT OF COMPUTER SCIENCE
SOFTWARE INNOVATIONS LAB

PHD STUDENT

KIJIN AN(안기진)



Timelines



2003-
2007



ECE B.E(4 years)
A.I Lab, 이재호 교수

- Undergrad Internship
- Agent System
(Robotics) Software Engineering



M.S (2 years)
MCNL Lab, 송황준 교수

- Networking,
Multimedia (codec)
- WLAN, Zigbee

2009



Assistant Manager
System Eg Team
(3.5 years)

- 병역특례
- WiBro Base Station
- RF/Optic Repeaters

2012



Researcher (3 years)
Robotics Research,
최종석 책임연구원

- Sensor Net & HRI
- 50억 정부과제 실무
(개발/관리) 총괄

2015



Computer Science,
PhD(15.8~), Software
Innovation Lab, Eli Tilevich

- Software Engineering
- Distributed System

(Expected in)
2020.12



Research Topics

- **Distributed Systems**
 - Networking (MS in POSTECH and SK telesys)
 - Networking + “*Robotics*” (KIST)
 - Networked Programs + “*Software Engineering*” (PhD in Virginia Tech)
- **Software Engineering**
 - Automated *Maintaining/Evolving/Optimizing* Software (Distributed Systems)
 - Software **Reuse**, Mismatch in Design time & Runtime (e.g **cross-platforms**)
 - State-of-the-art “*Program Analysis*” and “*Transformation*” techniques

Dissertation Contributions

- New refactoring: “Client Insourcing” (**WWW’ 20**)
 - *Declarative approach(z3/Datalog), fuzzing, and idempotent execution*
- Demonstrating the value and utility of “Client Insourcing”
 - **Distributing Tools** for Optimizing/Evolving/Maintaining Distributed JS Applications
 1. Bug Fixes in Distributed apps (**ICWE’ 19**, Patch Generator)
 2. Optimizing granularity of Distributed apps (**SANER’ 20**, headless browser)
 3. Optimizing Web execution in Runtime (submitted to **Mobicom’ 20**)

Publication in PhD course



5

1

4

↑

No.	Paper		Conference	Area	
1.	Client Insourcing		Web Conference 2020 (19%, 217/1129)	Web Engineering	1st Author/2
2.	D-Goldilocks		SANER 2020 (21%, 42/199)	Software Engineering	1st Author/2
3.	Catch&Release (CanDoR)		ICWE 2019 (25%, 26/106)	Web Engineering	1st Author/2
4.	Project1	Paper1	MobileSoft 2018 (Nominated for Best Paper)	Software Engineering	1st Author/3
5.	Project2	Paper1	GPCE 2018 (Invited to Journal)	Software Engineering	2nd Author/3
6.		Paper2	Journal of Computer Language	Software Engineering	2nd Author/3
7.	Doctoral Symposium	Paper1	Web Conference 2020	Web Engineering	1st Author/1
8.		Paper2	ICWE 2019	Web Engineering	1st Author/1
-	Comm. Web Vessels (Submitted)			Distributed Systems	
-	Edge Insourcing (Ongoing)			Distributed Systems	VIR

Projects



	Purpose	Projects	기간	Supported By/ Co-work
Virginia Tech	Distributed System: Security Education for CS@VT undergrads	<ul style="list-style-type: none"> CS@VT Core Course, “Heap Spraying Attack”, <u>Victim Server(V8)</u>/Grading Server User Study (over 500 undergrads for 4 semesters) 	2년	GTA funded by CS department ECE, EngE
	Distributing Tool: Automated Secure Drone Program	<ul style="list-style-type: none"> Automated Distribution of “PX4_firmware” (Drone), supporting “Optee/SGX” Environments 	2년	GRA funded by NSF
한국과학기술연구원	Distributed System: Networked Vision System for HRI in a Smart-Class	<p>센서네트워크 기반 휴먼인식 시스템 (12.09~15.07)</p> <ul style="list-style-type: none"> 비전/음성기반 휴먼 인식 및 로봇 서비스, 3D 시뮬레이션 http://www.robot-intelligence.kr/index.php/3W_for_HRI 	3년	산업통상자원부, KEIT, KU,KHU, PCU,POSTECH
POSTECH	Network-based Simulators	Simulation for 802.15.4a based indoor location recognition	7개월	DGIST
		Sensor Net MAC, routing Actors supporting Ptolemy Tool	9개월	DGIST, UCBerkeley
SK telesys	3G/4G Communication Equipment	WIP-300(WiFi+IPPBX) , eIBS (WiFi + RF Repeater) Outdoor WiBro Base Station, 4G LTE Optic/RF Repeaters	35개월	SK telink/telecom

센서네트워크 기반 휴먼인식 시스템



- 5년 과제(KIST, POSTECH, KU, KHU,...), 50억 정부출연금(산업통상자원부)
- 역할: Researcher & 프로젝트 매니저(실무담당자)
 - 1차년도 ~ 4차년도(kickoff): 교실환경 자동화/지능화
 - 데모 및 통합: 출석체크(1차년), 과제물배포(2차년), 자율학습진행(3차년)
 - 3D Simulator, Leg-detection & human follower
 - 해외컨퍼런스 10편 (비디오, short 버전 포함)

P.I 최종석박사: 이달의 산업기술상(신기술 부문)



신기술 부문 - 3월 장관상

최종석 한국과학기술연구원(KIST) 로봇연구단장(사진)은 로봇의 다중센서를 활용해 사람의 위치와 행동, 신원 정보 등을 정확하게 인식하는 기술을 개발했다. 최 단장 연구팀은 실제 환경에서 로봇이 최대 30명의 신원과 행위 및 위치정보를 인식하는 '다중센터융합기반 휴먼인식' 기술을 개발했다.

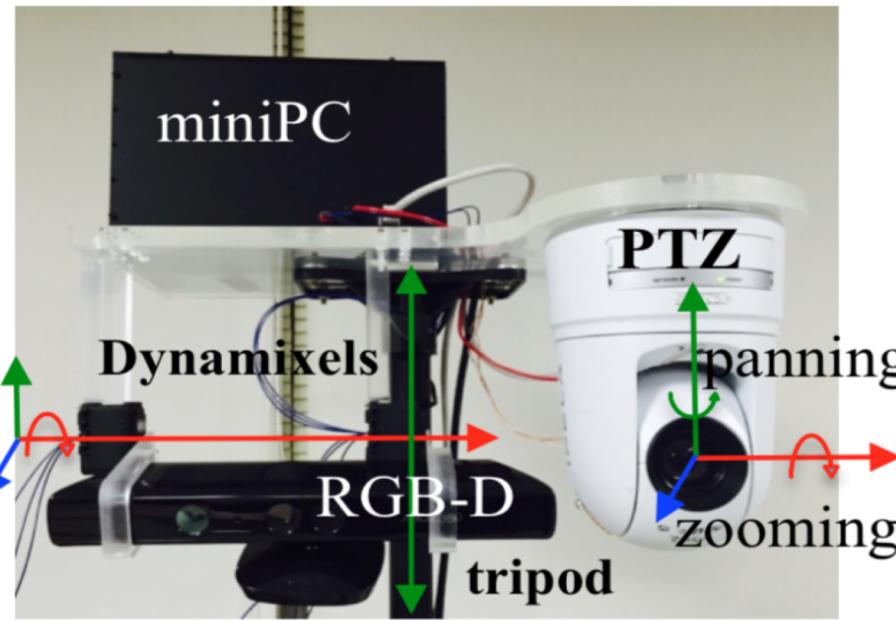
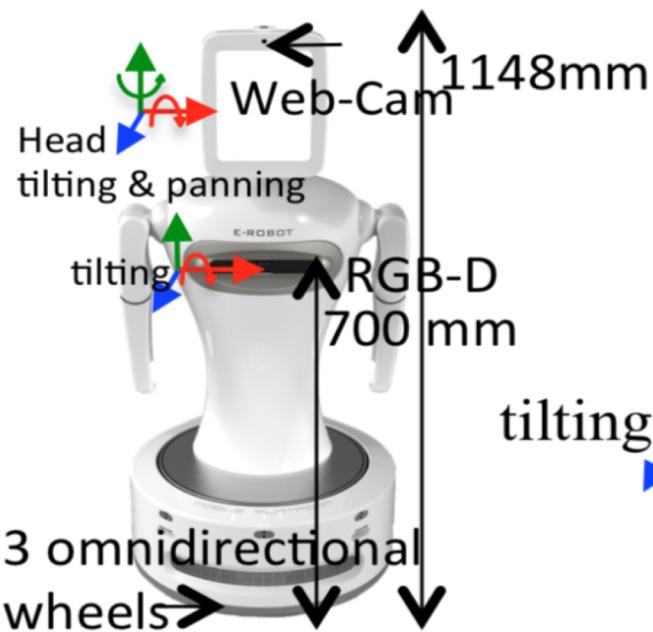
이 기술이 적용된 로봇은 센서를 활용해 사용자가 누구이며 어디에 있는지, 어떤 행동을 하는지 등을 알아낸다. 얼굴 검출률은 97%, 인식 정확도는 99%에 달한다.

Thank you!

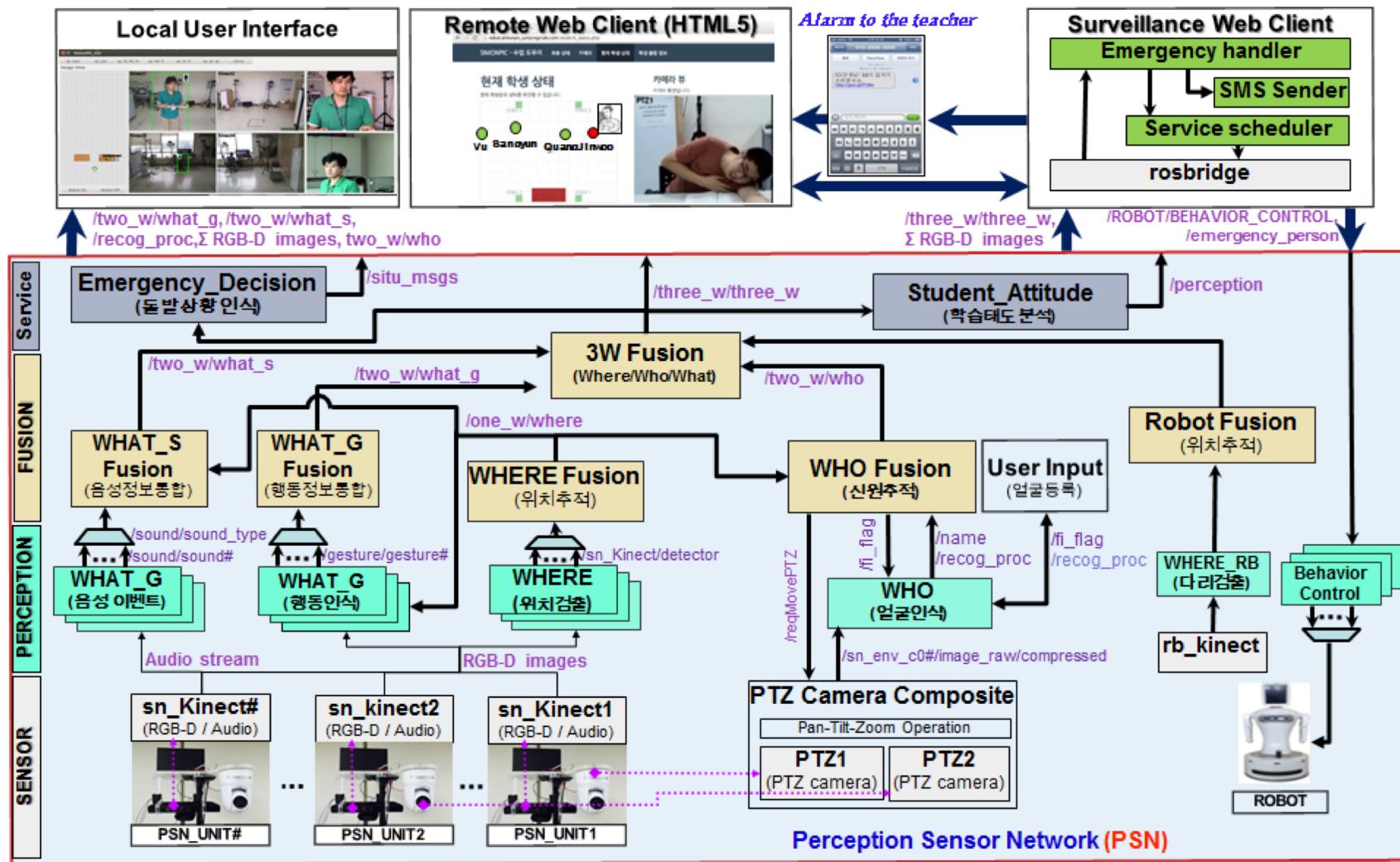
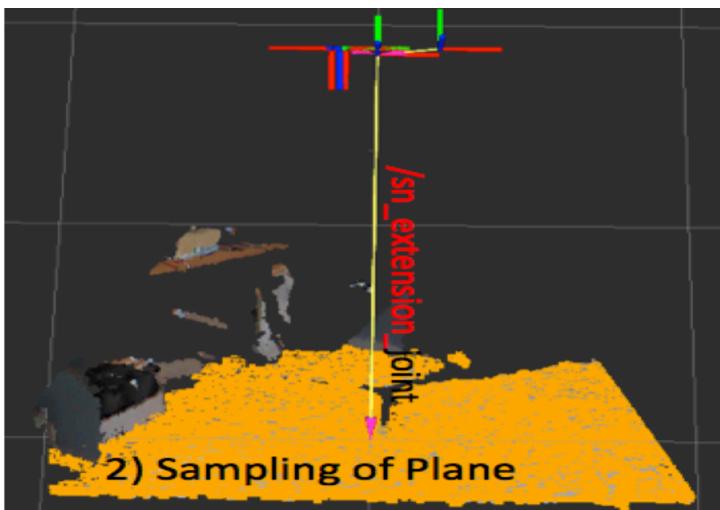
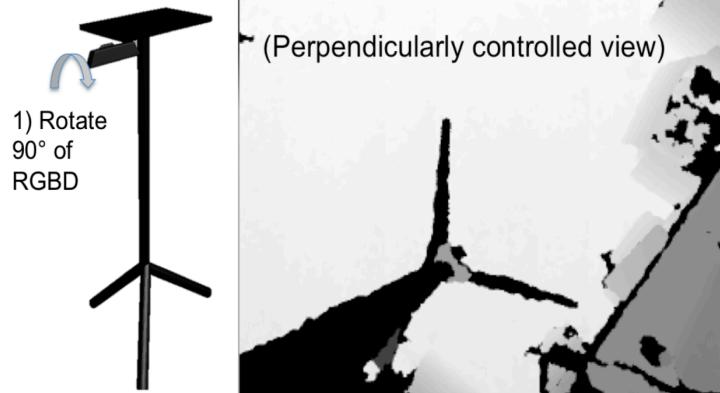
Q & A

(Next:
로봇관련 프로젝트
참고자료)

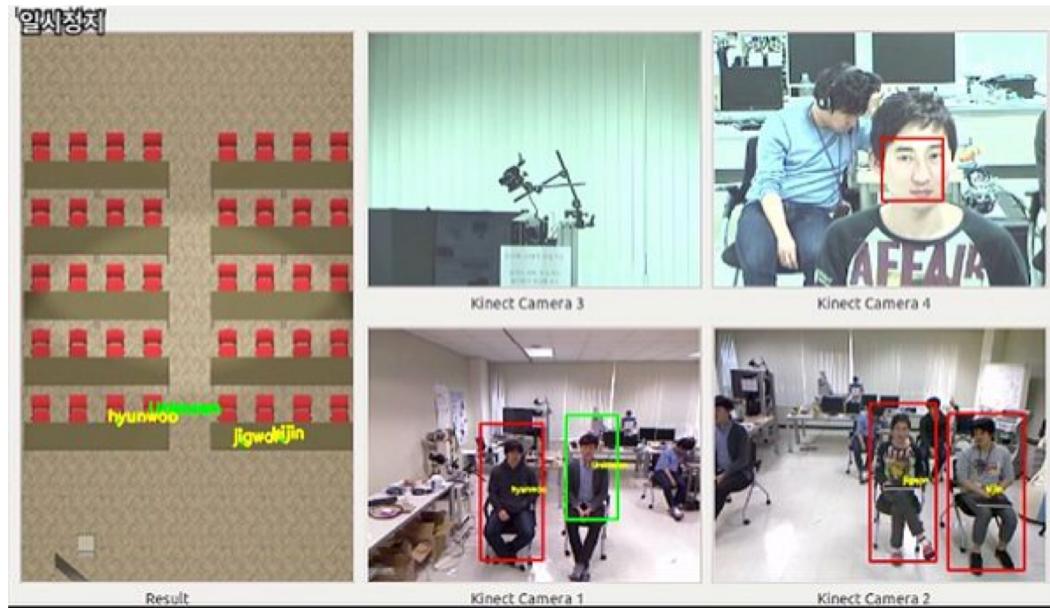
Appendix: 센서네트워크 기반 휴먼인식 시스템



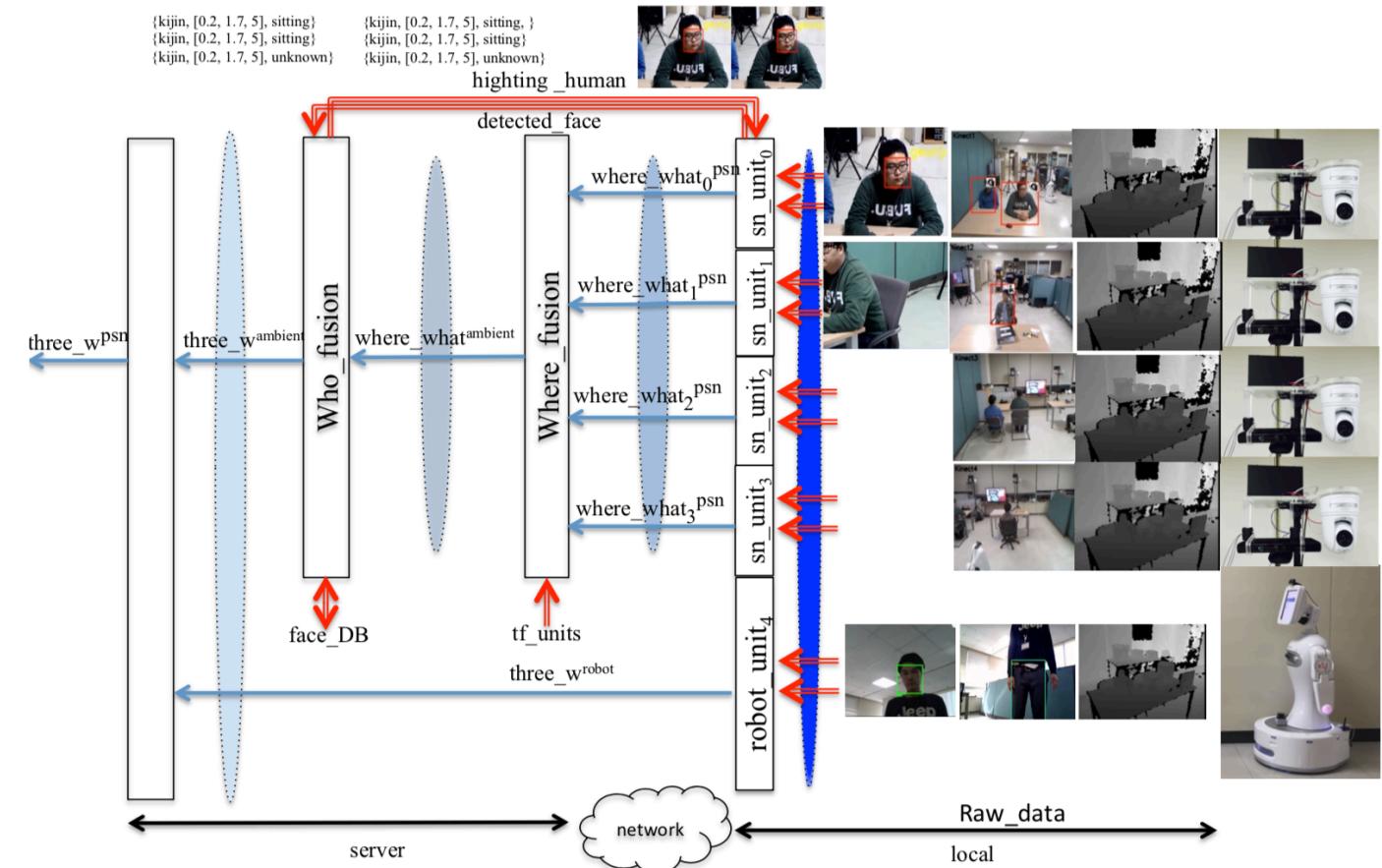
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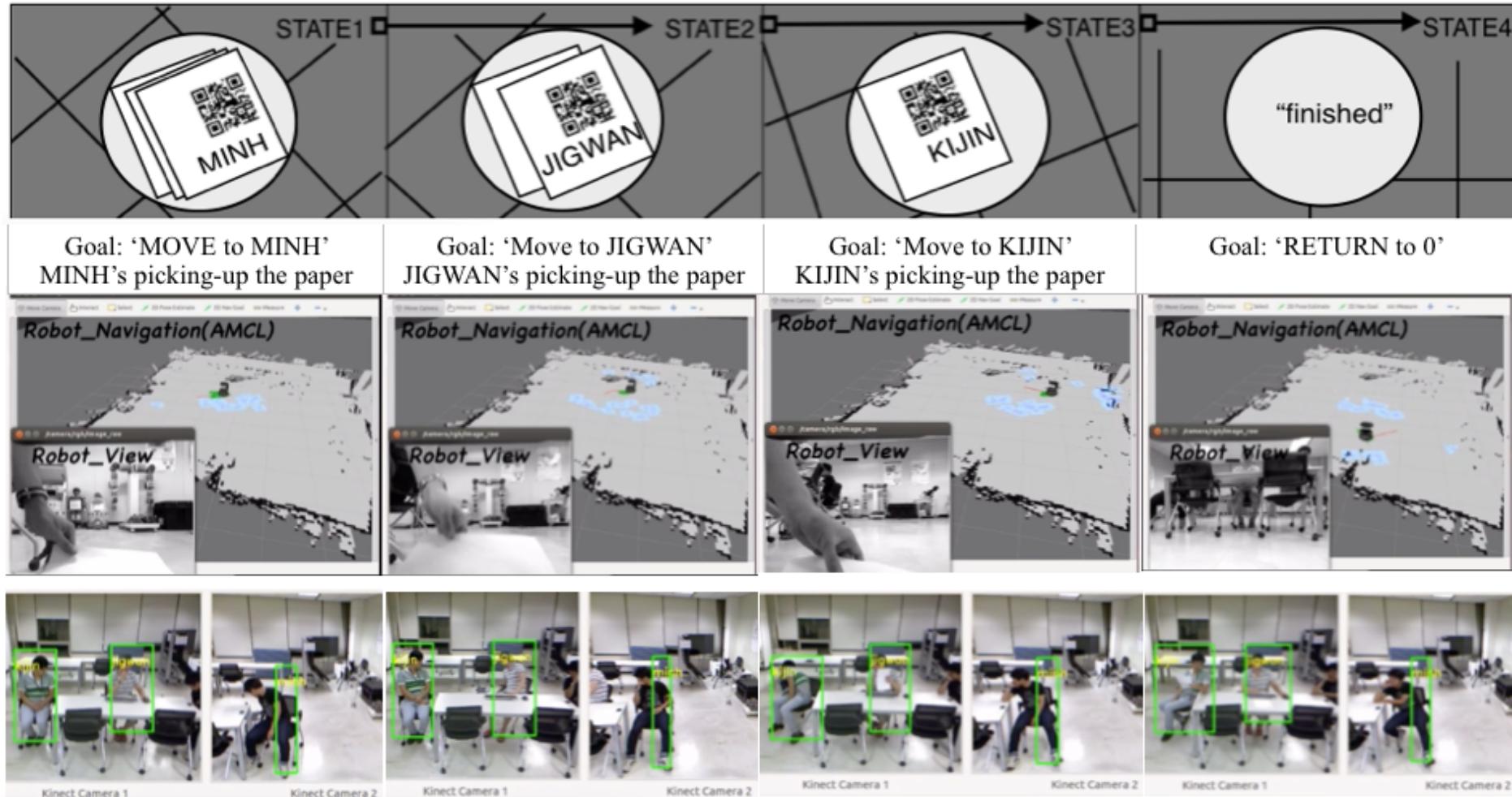
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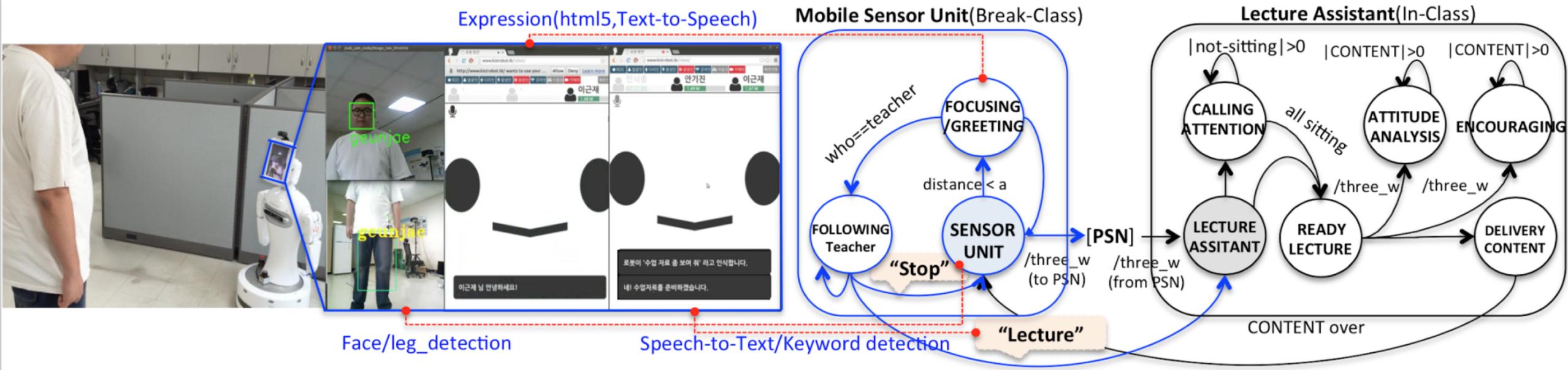
3W(who, what, where) fusion



Appendix: 과제물배포(2차년도 Demo)

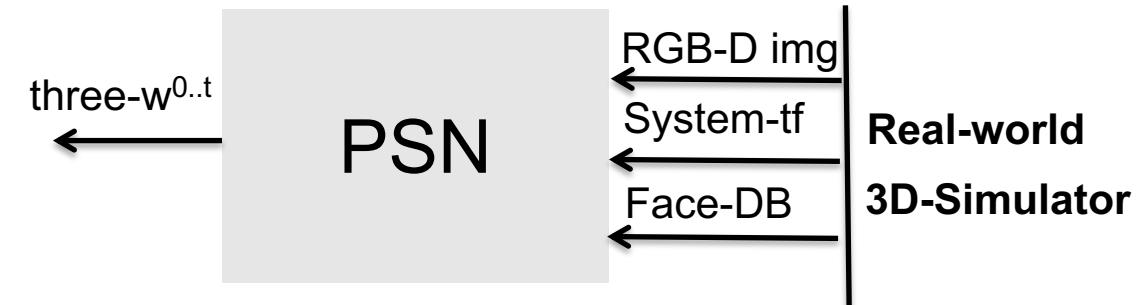
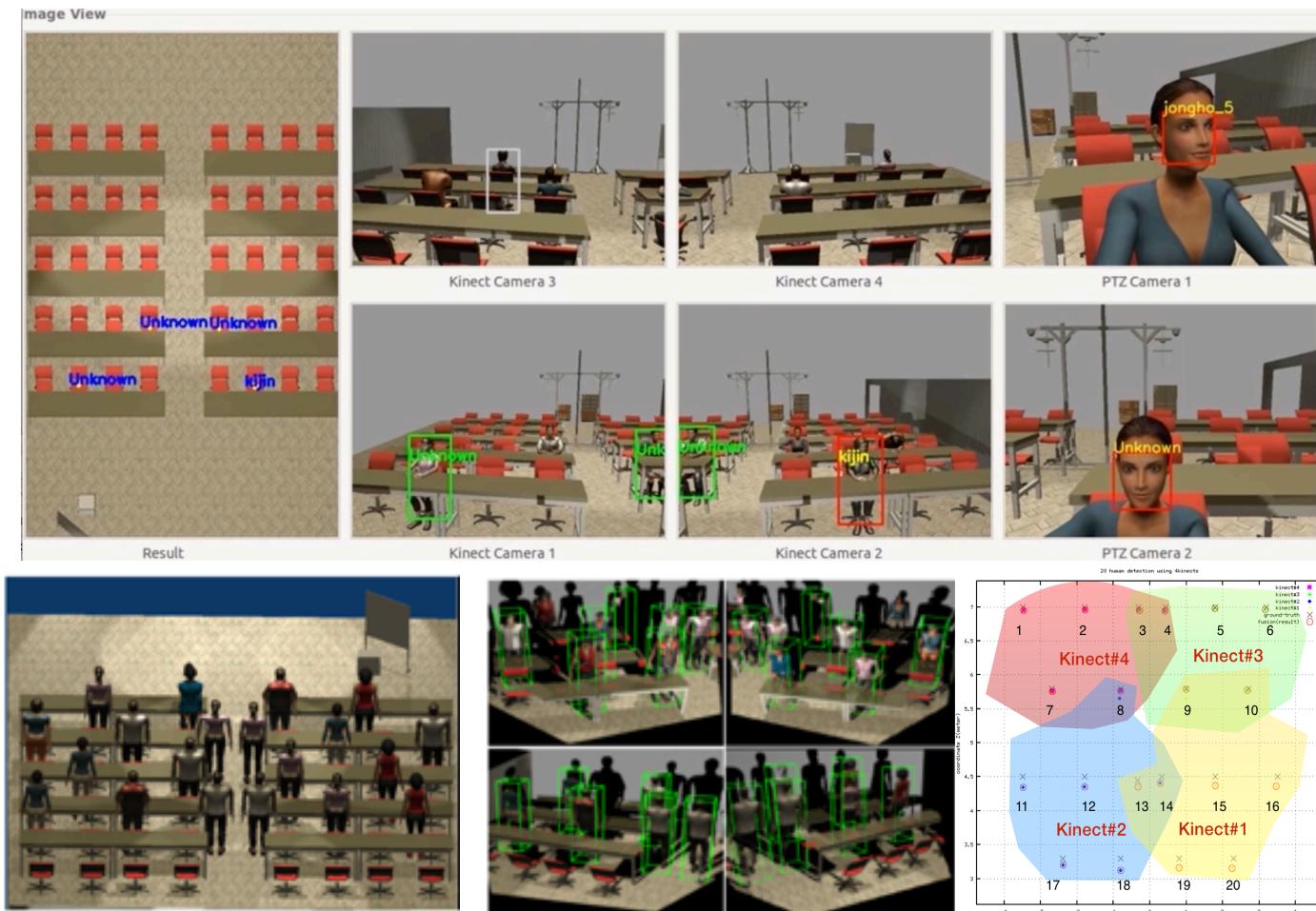


Appendix: 자율학습진행 (3차년도 Demo)

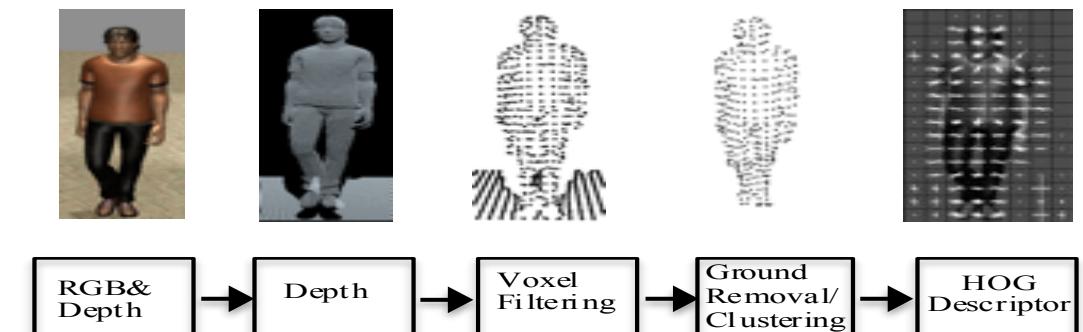


<https://drive.google.com/file/d/1QA5bPaVXynyV4KLIT0IBdNaKNvuEFHXj/view?usp=sharing>

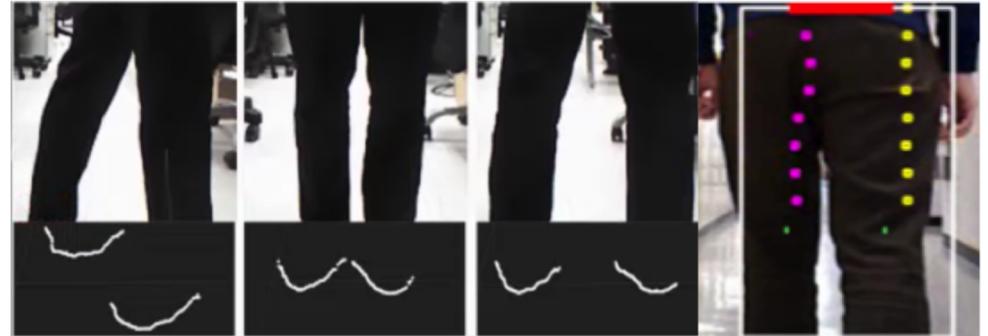
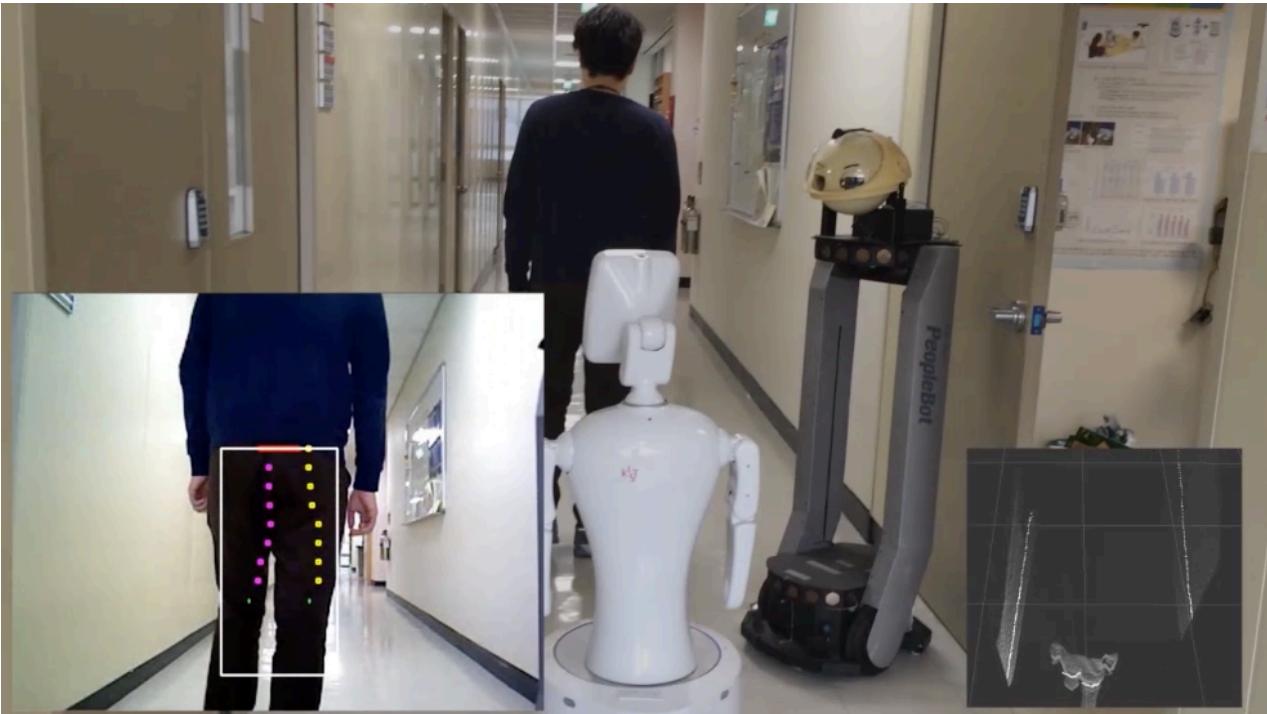
Appendix: 3D Simulation (RO-MAN '14, '15)



results of the process are summarized in Fig 5.



Appendix: Leg Detection & Human Follower (HRI'15)

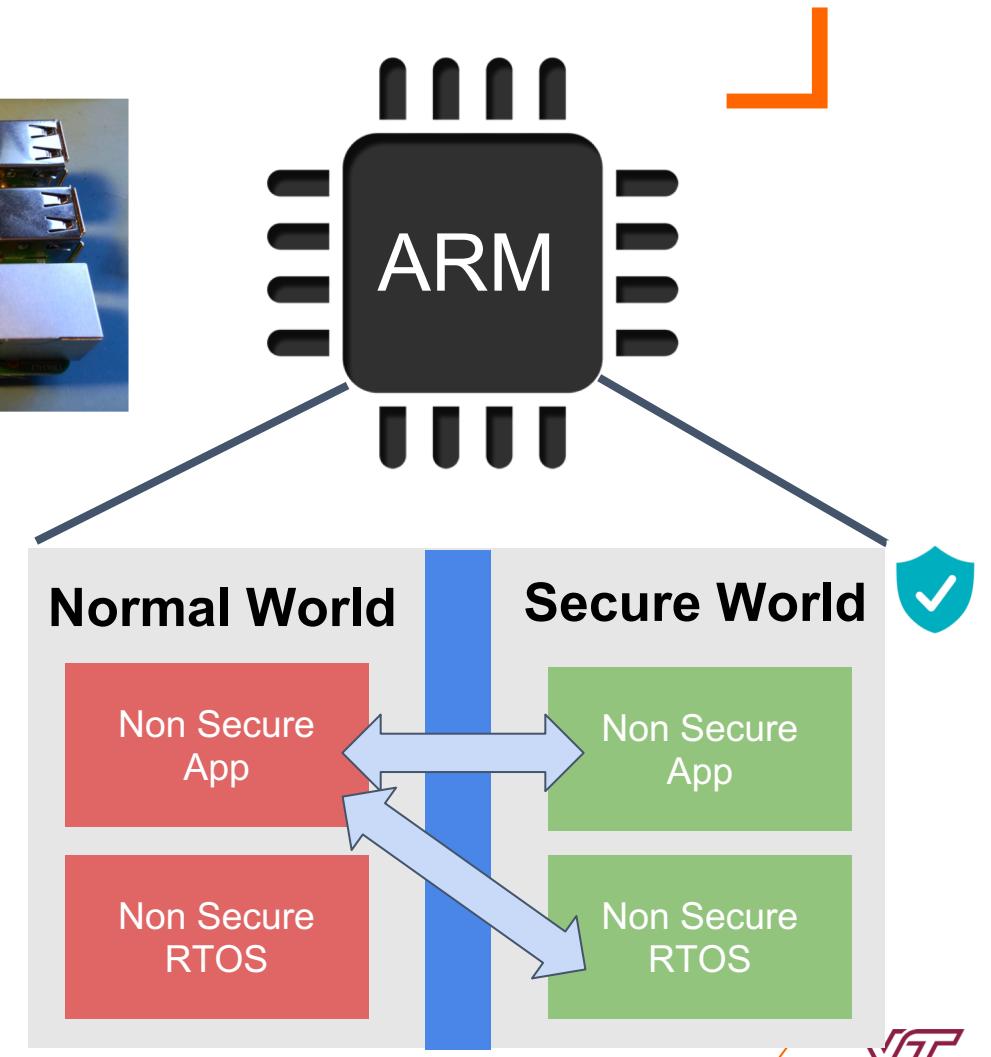
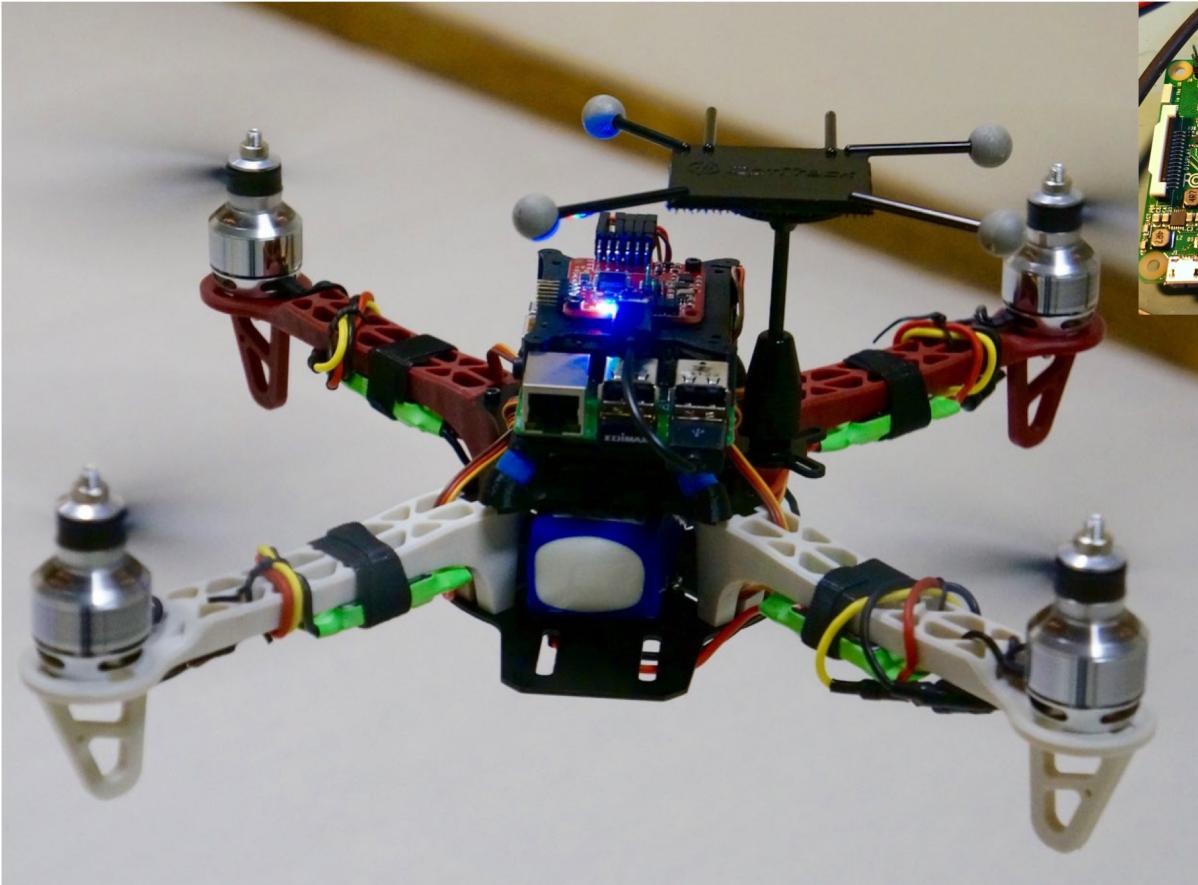


Step 2. Masking with Low-Body-Part in 3-Dimensions

- Segmentation by Euclidean Clustering
- Repeat until up to 0.7m
- Both legs should be connected at the highest point.

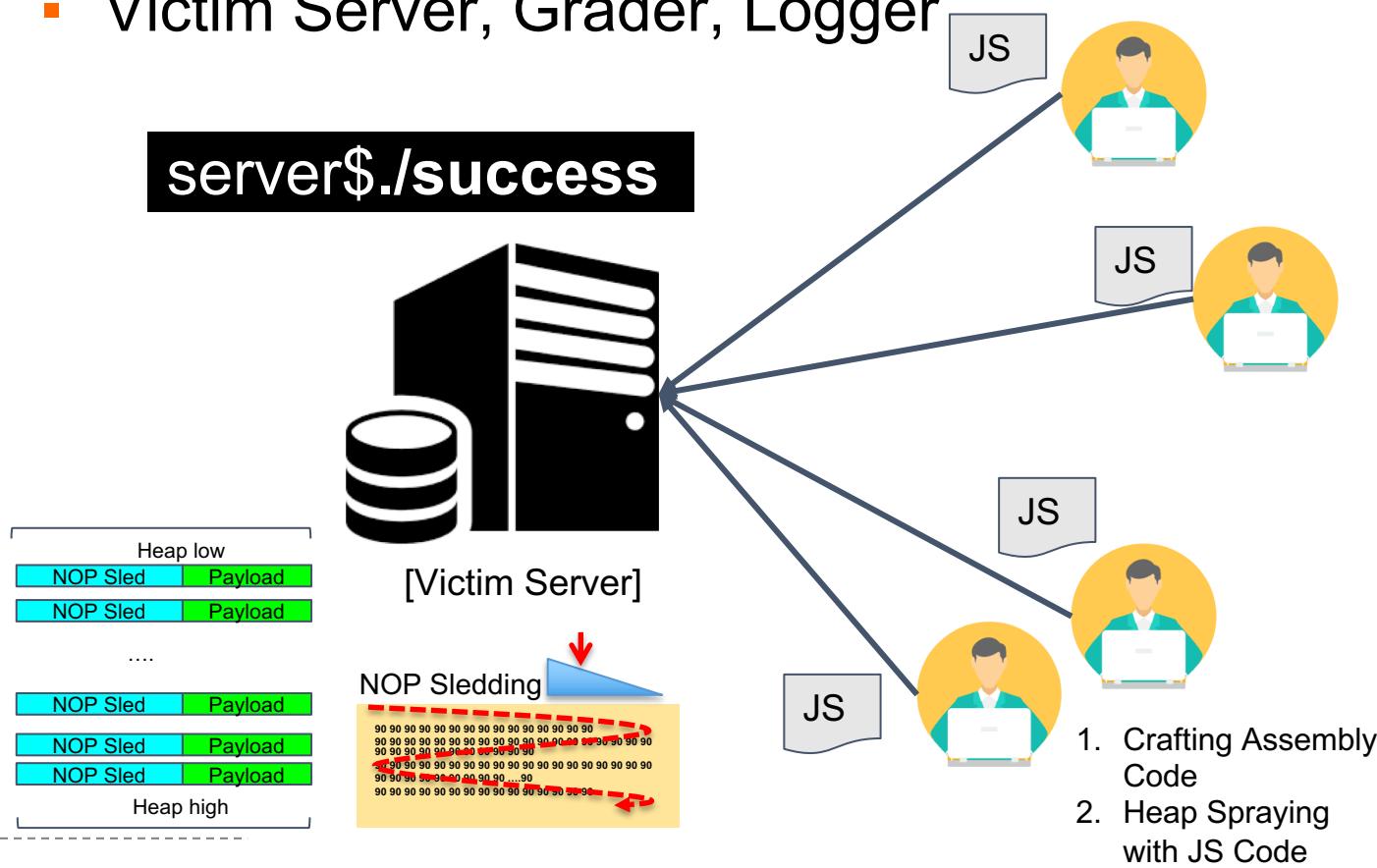
A 3D point cloud visualization of a person's legs, with green and yellow colors applied to specific points according to the masking process described in the text.

Appendix: Trusted Execution for low cost ARM architecture



Appendix: Understanding Heap Spraying Attacks

- V8
- Victim Server, Grader, Logger



A screenshot of a web browser displaying a submission page for 'CS-2506 - Spring 2018'. The URL is <https://courses.cs.vt.edu/cs2506/autograder/#/autogradersubmissions>. The page shows an 'Upload a submission' section with a dropdown menu set to 'cs2506final-Final Submission' and a 'Choose File' button. Below this, a table lists a submission:

cs2506test	060c4649- 56f5-4c18- a406- d1d62514084d	2018- 03-26 13:43:42	2018-03- 26 13:43:42	► COMPLETE(3/5)
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The page also displays the result of a test submission:

```
Result for TEST Submission: 060c4659-56f5-4c18-a...
number of success: 3 / 5

trial # 1
trying to run maliciouspage.html
Loaded page: A malicious page
triggerOverflow
unprotecting segment [0x383a000-0x41d1000]
jumping to 0xb47bf3
success here!

trial # 2
trying to run maliciouspage.html
Loaded page: A malicious page
triggerOverflow
unprotecting segment [0x3661000-0x3ff7000]
jumping to 0xfcdb8f6
Segmentation fault (core dumped)
```