

# Introduction

## **Geospatial Information for Infrastructure**

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# Construction IT

- Sensing technology
- Building information modeling (BIM)
- Augmented reality (AR)
- Communication technology
- Database technology
- Artificial intelligence
- ...

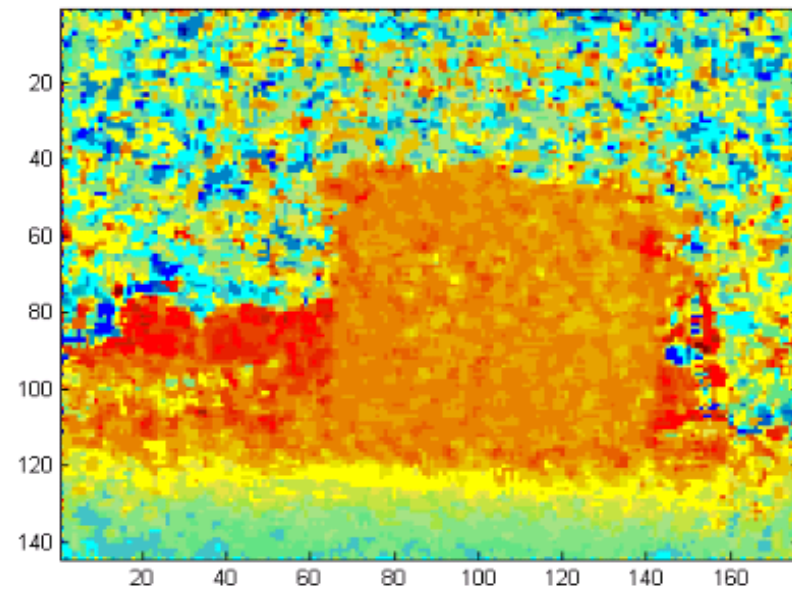
# Flash LADAR



CSEM, 2008

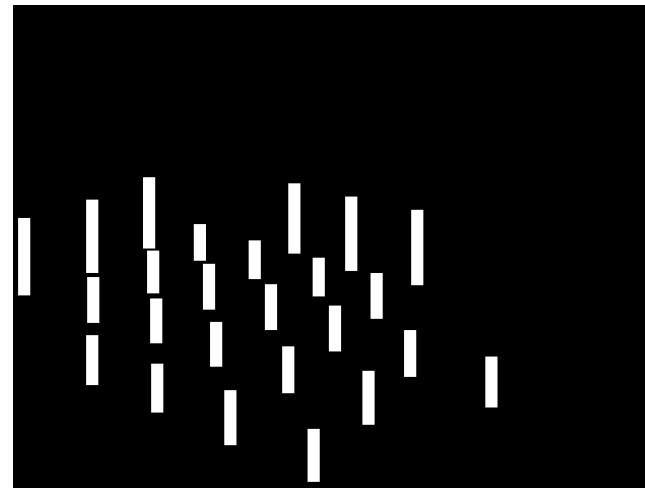
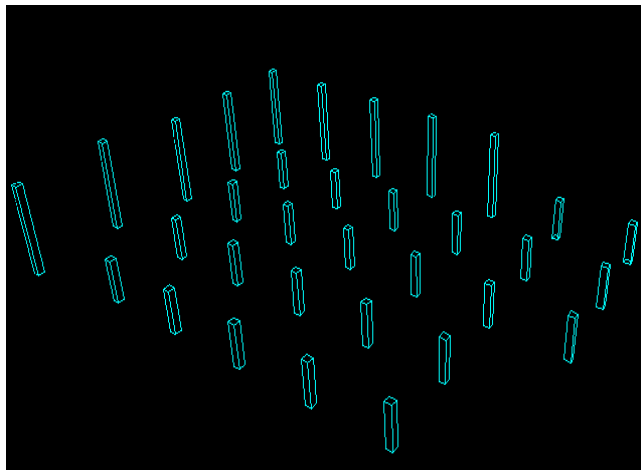
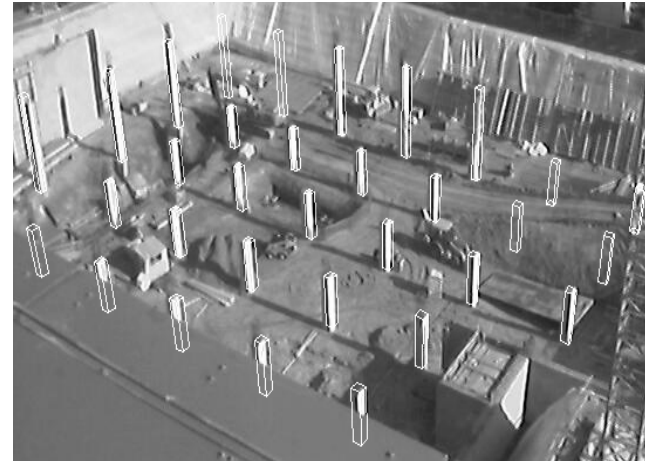
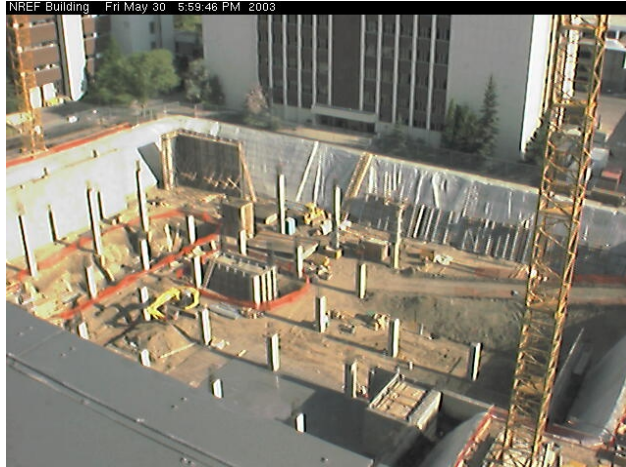


**The Site Image**



**Range Image**

# Image processing for construction monitoring



# USN + RFID System Specification



**Fig. 1 TX (Left) and RX (Right) Antennas**

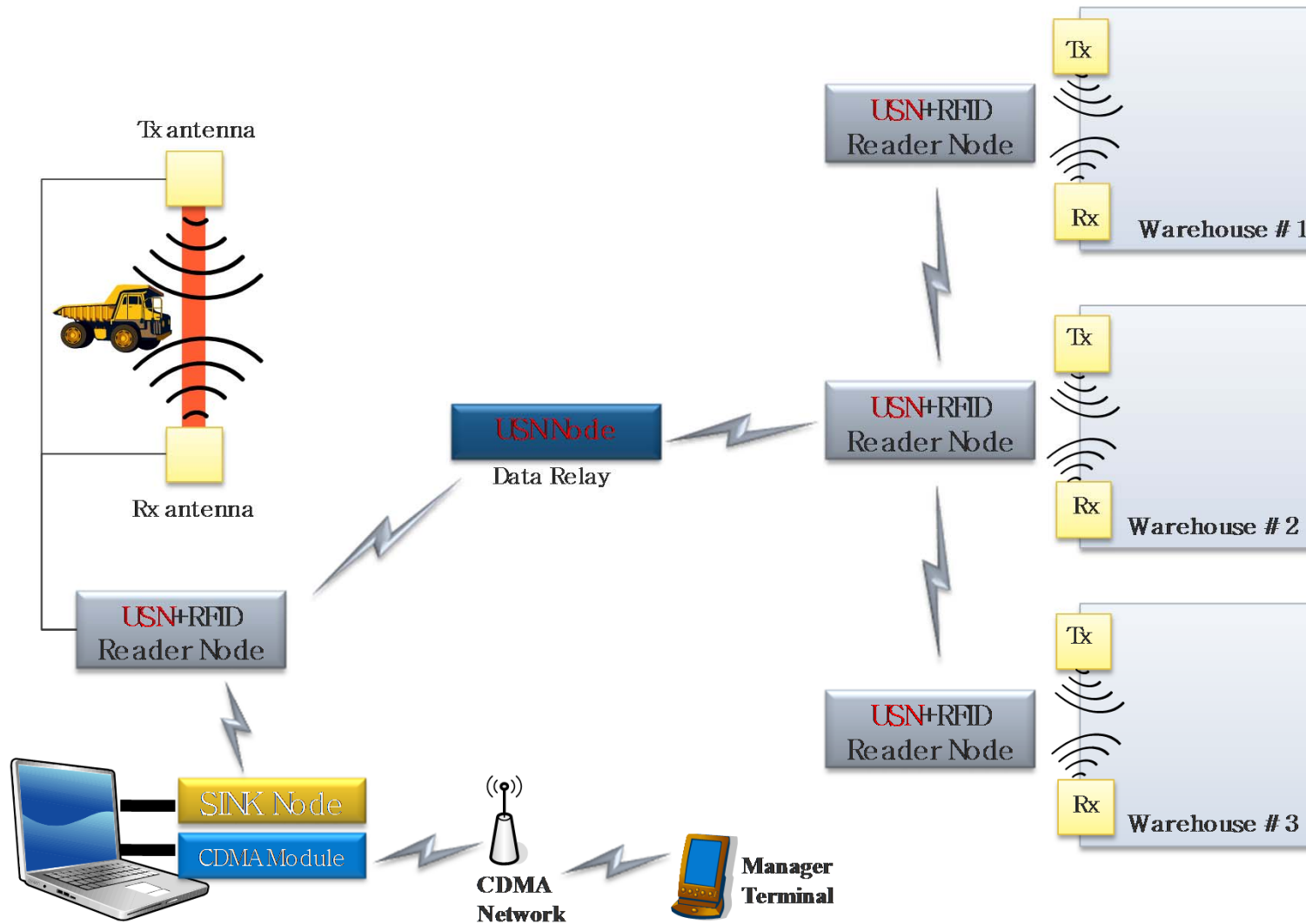


**Fig. 2 USN Module (Sensor Node) and RFID reader**



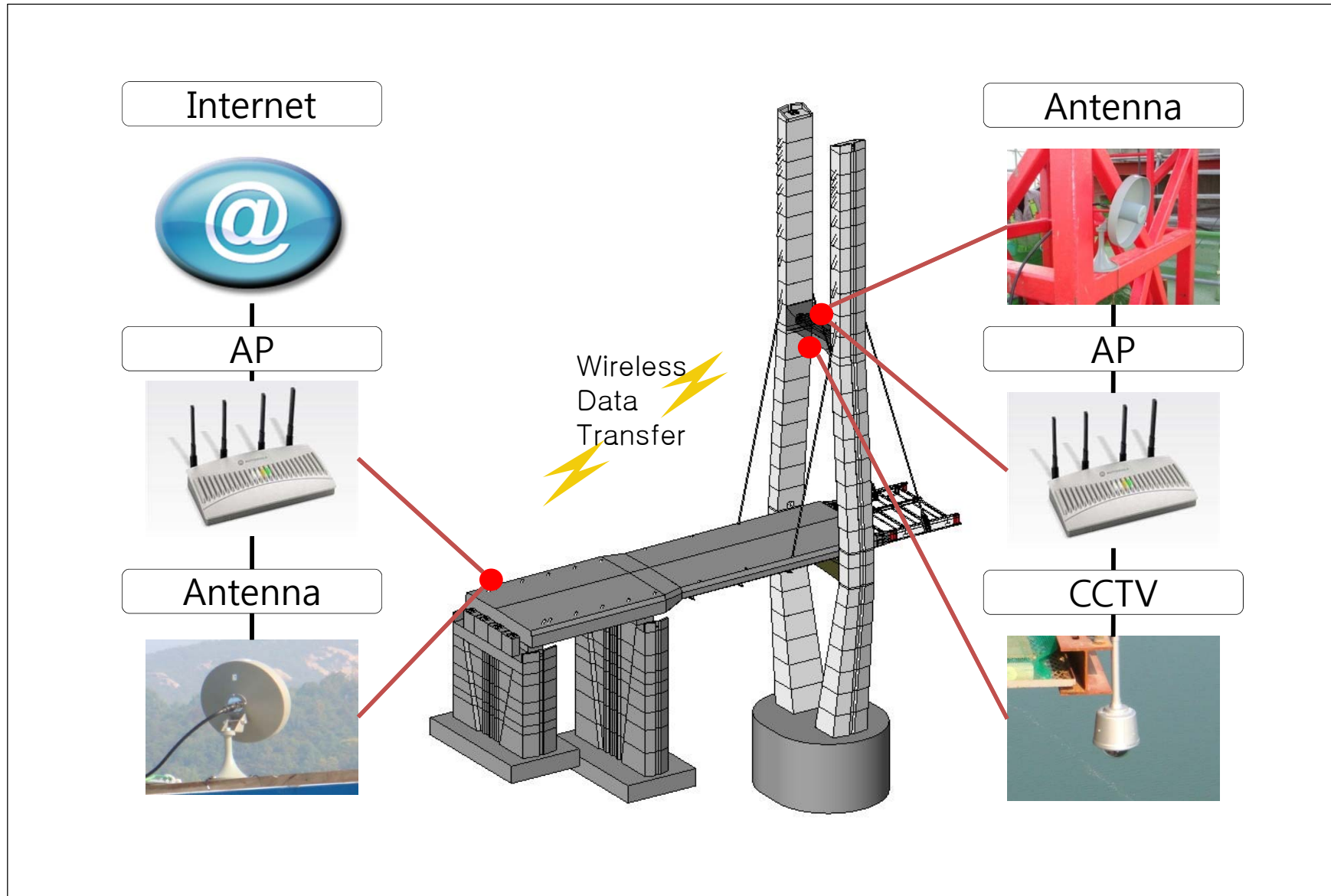
**Fig. 3 Laptop with USN Module (Sink Node)**

# RFID/USN for Intelligent Material Tracking

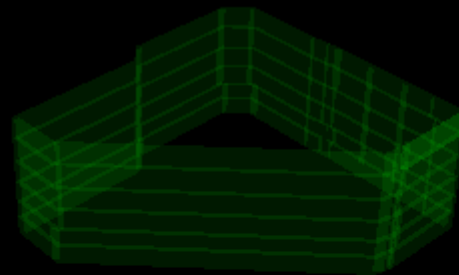




# Intelligent Bridge Construction



# 4D CAD Model for Building



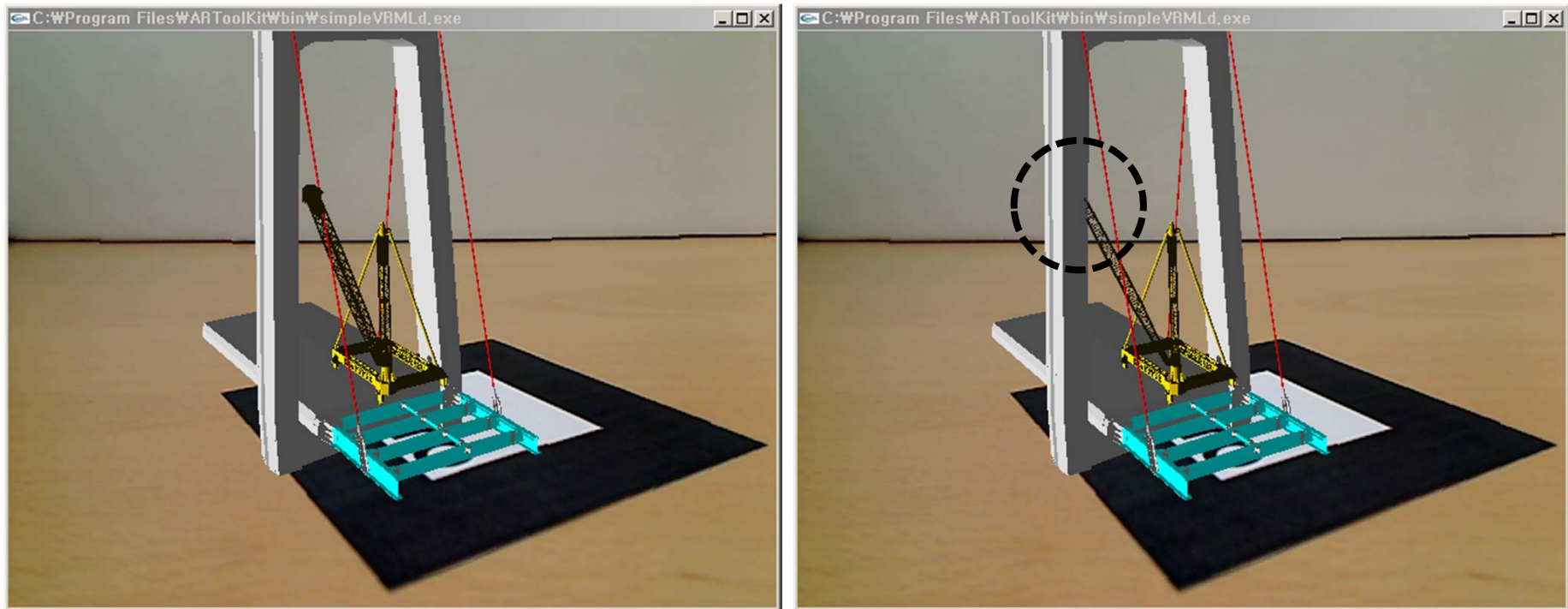
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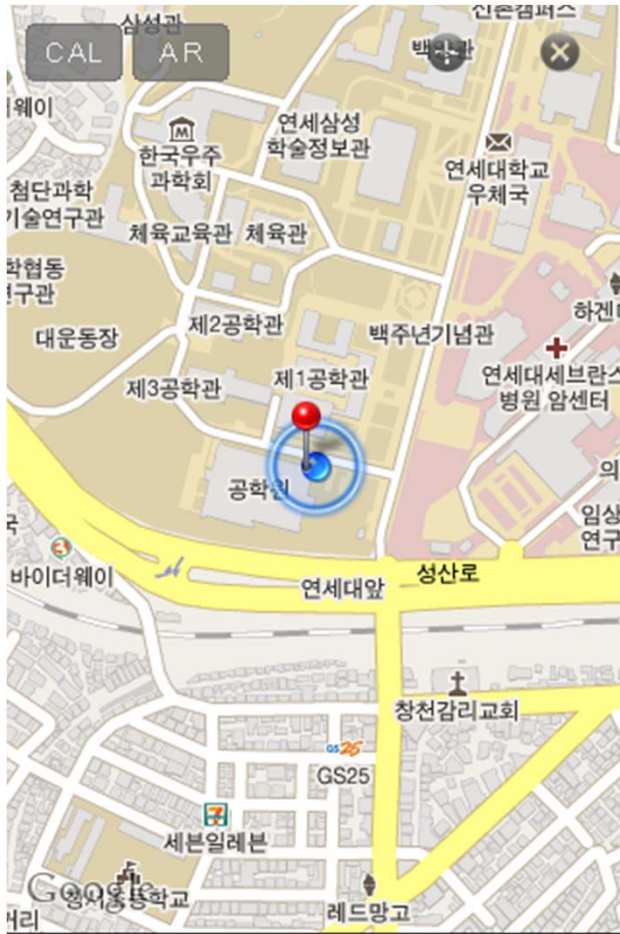
# Augmented Reality for Construction Simulation



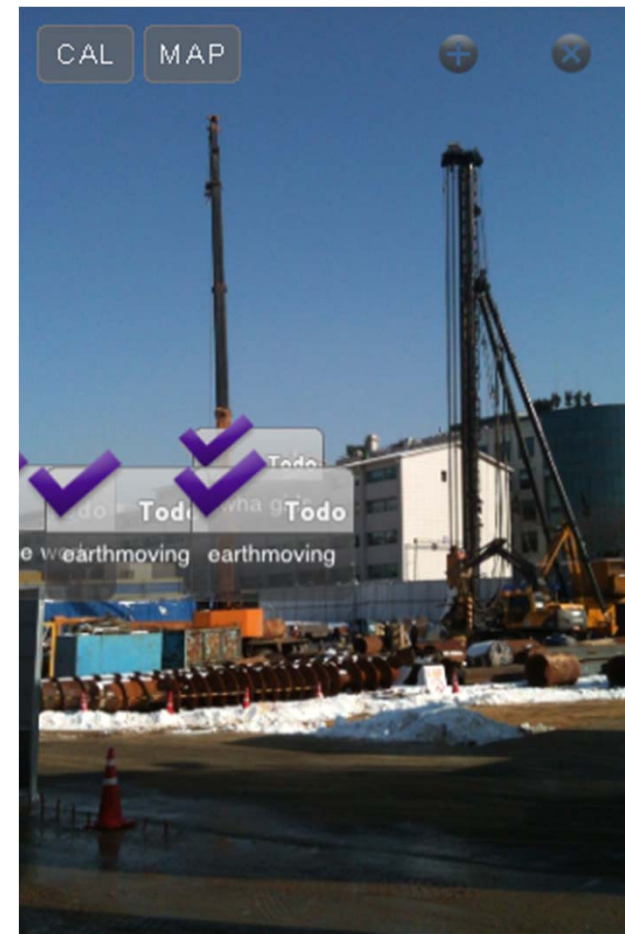
# Augmented Reality (cont'd)



# Smart Phone Application for Construction Management



Location of the Registered Work Task



Augmented Reality of the Work Task on the Construction Site

# Construction Equipment Management System

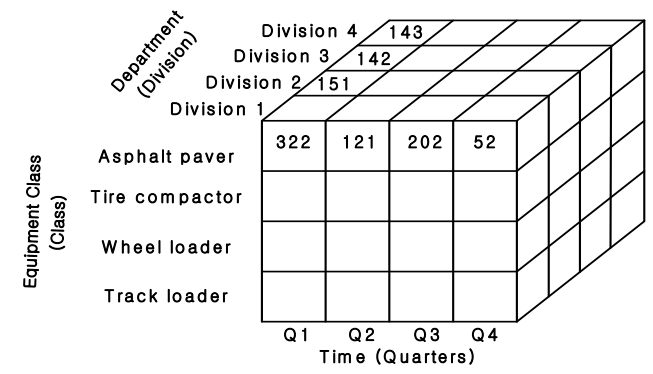
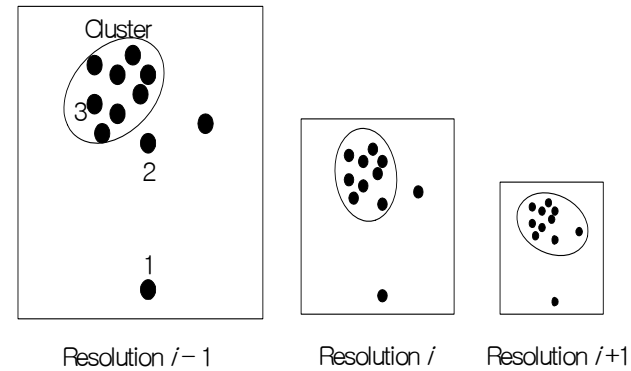
Data Mining



Data Warehouse



Database



	A	B	C	D	E	F
	D	ZIP_CODE	CITY	STATE	AREA_CODE	CITY_ALIAS_NAME
1	1	30501	HOLTSVILLE	NV	516	HOLTSVILLE
2	2	30501	HOLTSVILLE	NV	516	IRS SERVICE CENTER
3	3	30544	HOLTSVILLE	NV	516	HOLTSVILLE
4	4	30544	HOLTSVILLE	NV	516	IRS SERVICE CENTER
5	5	30601	AQUADA	PR	787	AQUADA
6	6	30601	AQUADA	PR	787	JARD DE ADJUNTAS
7	7	30601	AQUADA	PR	787	URB SAN JOAQUIN
8	8	30602	AQUADA	PR	787	EXY LOS ROBLES
9	9	30602	AQUADA	PR	787	AQUADA
10	10	30602	AQUADA	PR	787	ALTS DE AQUADA
11	11	30602	AQUADA	PR	787	URBISABELLA CATOLICA
12	12	30602	AQUADA	PR	787	URB MONTENAR



# Artificial Neural Network for Construction Decision Making

