



BIM & VR & AR IN CONSTRUCTION

FUTURE BUSINESS TOWER .CO
AB STUDIO



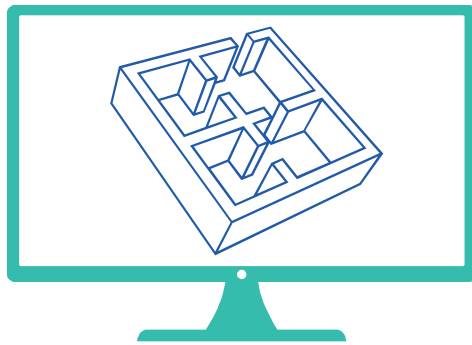
BIM



WHAT IS BIM?

Introduction

BIM is an intelligent infrastructure in project management and implementation:



Using 3D models in design,
construction and maintenance



Creating a
comprehensive and
accurate view of costs,
planning and
implementation
capabilities



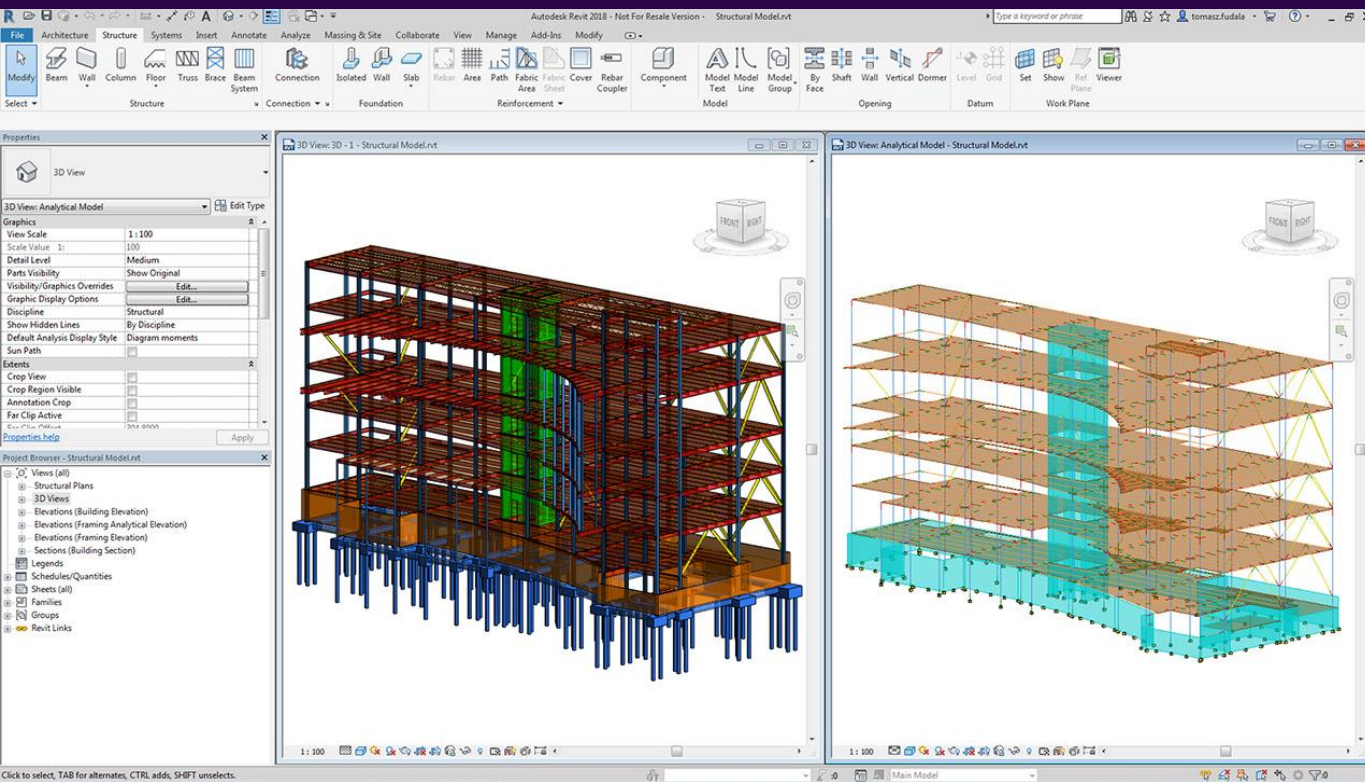
Access for
information
integration in the
office or project site



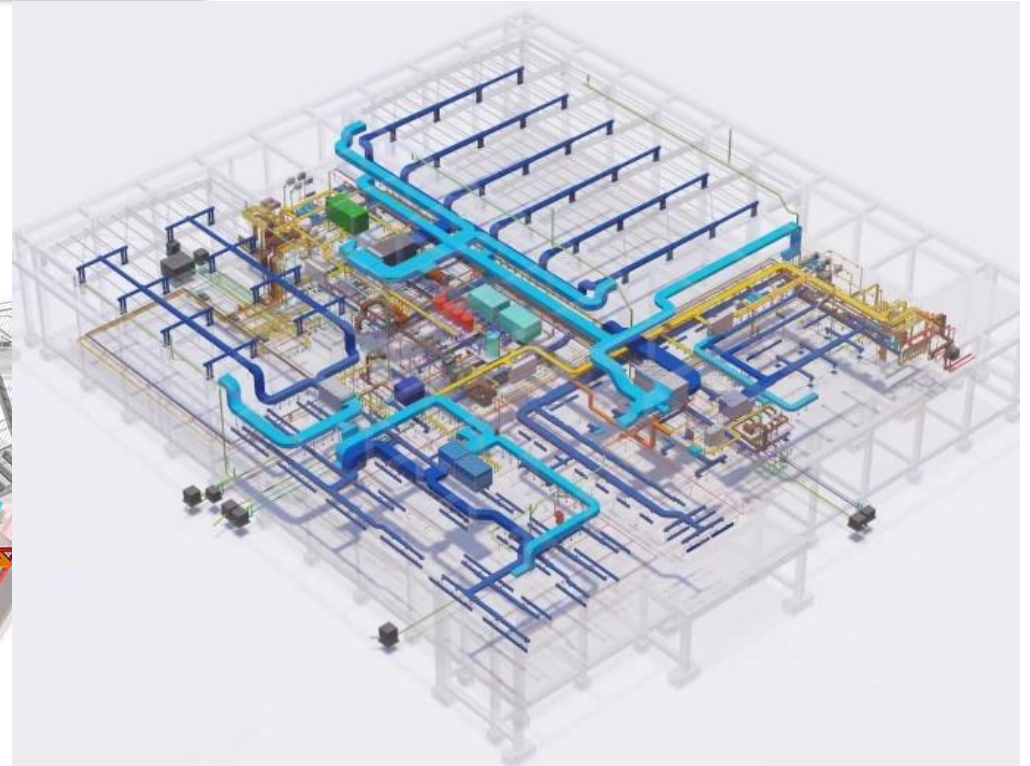
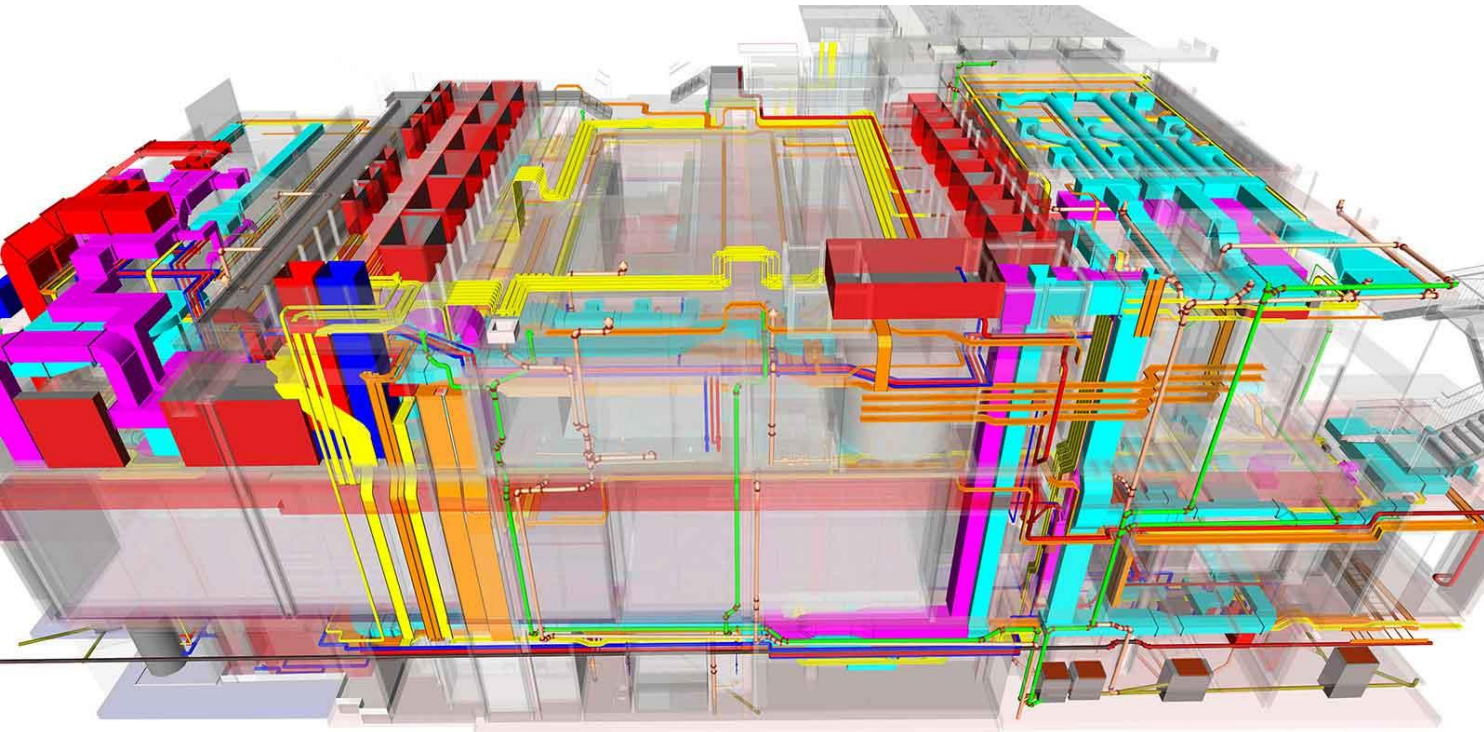
Capability to
respond quickly and
intelligently to all
problems and
changes



ARCHITECTURE MODELING

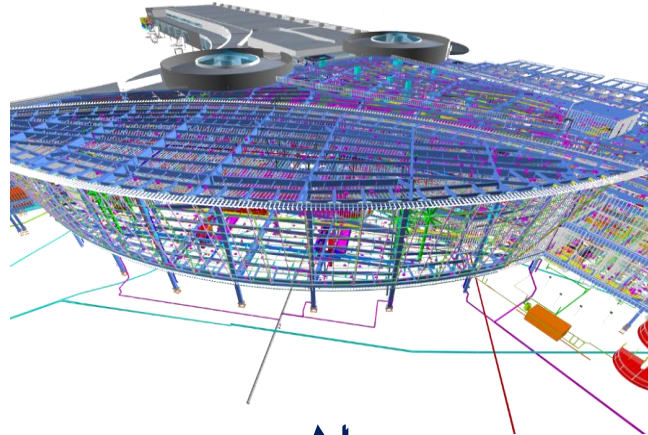


STRUCTURE MODELING



MEP MODELING

3D model of the airport terminal



Database



Criteria													
Proj ID	Criteria ID	Comments	Category	Property Display Name	Property Value	Condition	Line Property	Is Property	Max Char	Exclude Packaging	Exclude Volume	ClassRate	Property
1	1	Line Prop	PDS Component	Line no		contains	Yes	No		No	No	No	No
1	2	3D Prop	PDS Component	Line ID		contains	No	Yes	42	No	No	No	No
1	3	Flange Prop	PDS Component	Prep	CL75	contains	No	No		No	No	No	Yes
1	4	Flange\Valve Prop	PDS Component	Prep	CL150	contains	No	No		No	No	No	Yes
1	5	Flange\Valve Prop	PDS Component	Prep	CL300	contains	No	No		No	No	No	Yes
1	6	Flange\Valve Prop	PDS Component	Prep	CL400	contains	No	No		No	No	No	Yes
1	7	Flange\Valve Prop	PDS Component	Prep	CL600	contains	No	No		No	No	No	Yes
1	8	Flange\Valve Prop	PDS Component	Prep	CL800	contains	No	No		No	No	No	Yes
1	9	Flange\Valve Prop	PDS Component	Prep	CL900	contains	No	No		No	No	No	Yes
1	10	Flange\Valve Prop	PDS Component	Prep	CL1300	contains	No	No		No	No	No	Yes
1	11	Flange\Valve Prop	PDS Component	Prep	CL2500	contains	No	No		No	No	No	Yes
1	12	Flange\Valve Prop	PDS Component	Prep	CL4500	contains	No	No		No	No	No	Yes
1	13	Exclude Insulation	Item	Layer	Level 56	=	No	No		Yes	No	No	No
1	14	Exclude Supports	Item	Layer	Level 50	contains	No	No		No	Yes	No	No

Application programming interface

API



STRUCTURE OF BIM PROCESS

Desired output

Name	Status	Clashes	New	Active	Reviewed	Approve
06. HYD v CRS	Old	8	0	0	0	0
07. ELE v CRS	Old	69	0	69	0	0
08. FIB v CRS	Old	21	21	0	0	0
09. MEC v HYD	Old	37	0	35	0	0
10. MEC v ELE	Old	33	0	24	0	0
11. MEC v FIB	Old	67	0	59	0	0

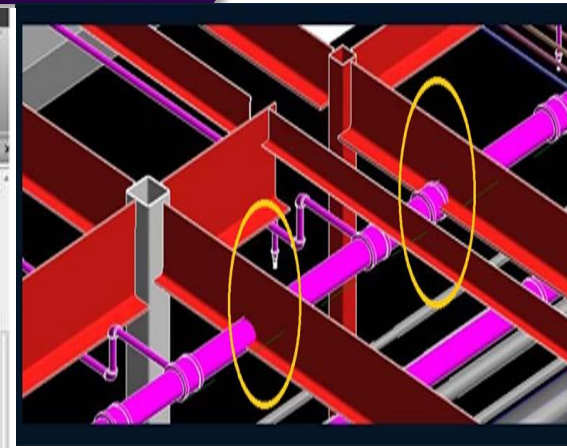
Clash Detect

Last Run: Monday, 16 March 2015 11:11:52 AM
Clashes - Total 37 (Open 31 Closed 6)

Clash10 Active GROUND LEVEL (1033)
Clash11 Active GROUND LEVEL (983)
Clash12 Active GROUND LEVEL (570)
Clash13 Active GROUND LEVEL (633)
Clash14 Active GROUND LEVEL (6250)
Clash15 Active GROUND LEVEL (575)
Clash16 Active GROUND LEVEL (577)
Clash17 Active GROUND LEVEL (569)
Clash18 Active GROUND LEVEL (6197)
Clash19 Active GROUND LEVEL (575)
Clash20 Active GROUND LEVEL (548)
Clash21 Active GROUND LEVEL (540)

Highlighted items: Item 1 (Red), Item 2 (Green)

Simulation: Show simulation



CLASH DETECTION

Autodesk Navisworks Manage Trapelo Logistics Plan.mwd

Home Viewpoint Review Animation View Output

Append Refresh Select All Find Items Require Links TimeLiner Presenter Batch Utility
 Reset All... Select Select Same Quick Find Hide Hide Unselected Quick Properties Clash Detective Animator Compare
 File Options Selection Tree Sets Unhide All Properties DataTools
 Project Select & Search Visibility Display Tools

TimeLiner

Tasks Links Gantt View Configure Rules Simulate

Gantt Chart

Display Dates: Planned vs Actual Zoom:

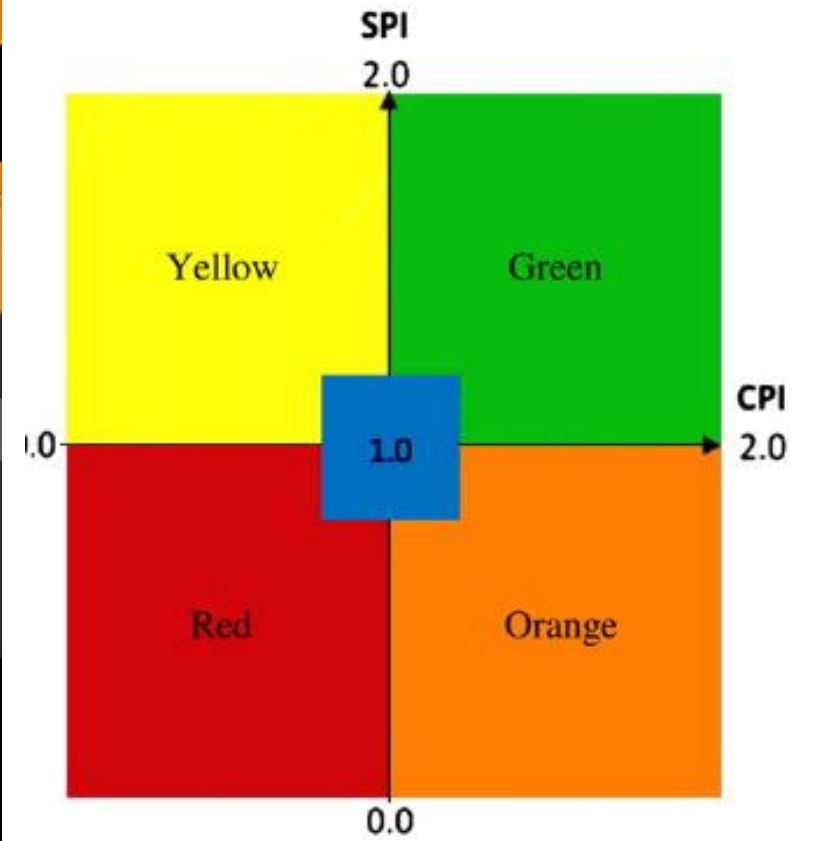
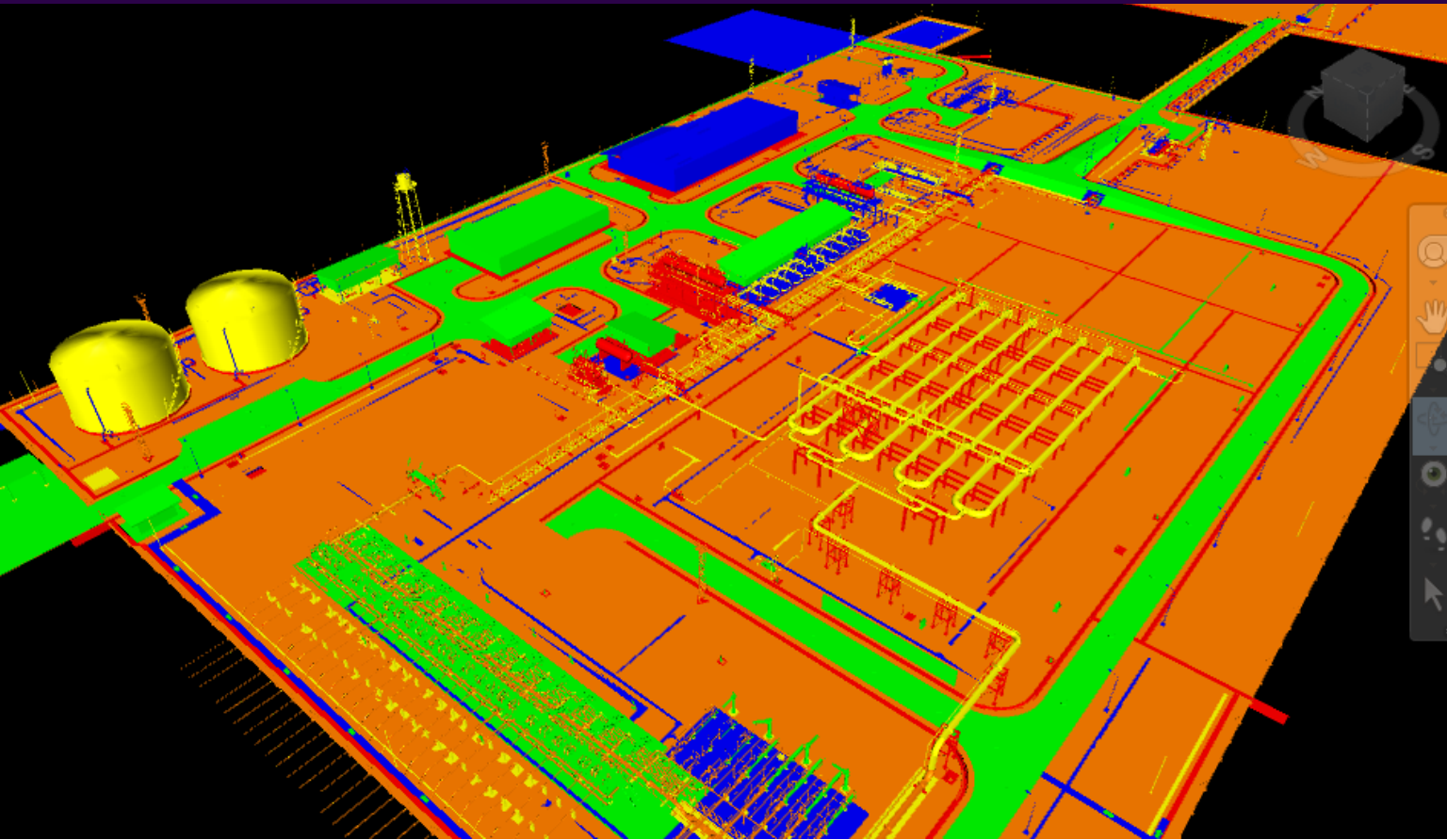
Active	Name	Status	Start	End	Planned St	March 2010		April 2010			May 2010					
						W13	W14	W15	W16	W17	W18	W19	W20	W21		
<input checked="" type="checkbox"/>	3 STRUCTURAL FRAM...		3/19/2010 8:00:00 AM	4/1/2010 5:00:00 PM	1/28/2010 8:00	[Red bar]										
<input checked="" type="checkbox"/>	3 STRUCTURAL FRAM...		4/2/2010 8:00:00 AM	4/6/2010 5:00:00 PM	2/11/2010 8:00		[Red bar]									
<input checked="" type="checkbox"/>	3 STAIRS		4/7/2010 8:00:00 AM	4/7/2010 5:00:00 PM	2/16/2010 8:00											
<input checked="" type="checkbox"/>	ROOF LEVEL		4/8/2010 8:00:00 AM	6/16/2010 5:00:00 PM	4/8/2010 8:00:00			[Long red bar]								
<input checked="" type="checkbox"/>	ROOF SLAB PHASE 1		4/8/2010 8:00:00 AM	4/12/2010 5:00:00 PM	4/26/2010 8:00			[Blue bar]								
<input checked="" type="checkbox"/>	ROOF SLAB PHASE 2		4/13/2010 8:00:00 AM	4/15/2010 5:00:00 PM	4/29/2010 8:00				[Blue bar]							
<input checked="" type="checkbox"/>	ROOF SLAB PHASE 3		4/16/2010 8:00:00 AM	4/20/2010 5:00:00 PM	5/4/2010 8:00:00					[Blue bar]						
<input checked="" type="checkbox"/>	ROOF SLAB PHASE 4		4/21/2010 8:00:00 AM	4/23/2010 5:00:00 PM	5/7/2010 8:00:00						[Blue bar]					
<input checked="" type="checkbox"/>	ROOF SLAB PHASE 5		4/26/2010 8:00:00 AM	4/28/2010 5:00:00 PM	5/12/2010 8:00							[Blue bar]				

TimeLiner Presenter

Ready 534 MB

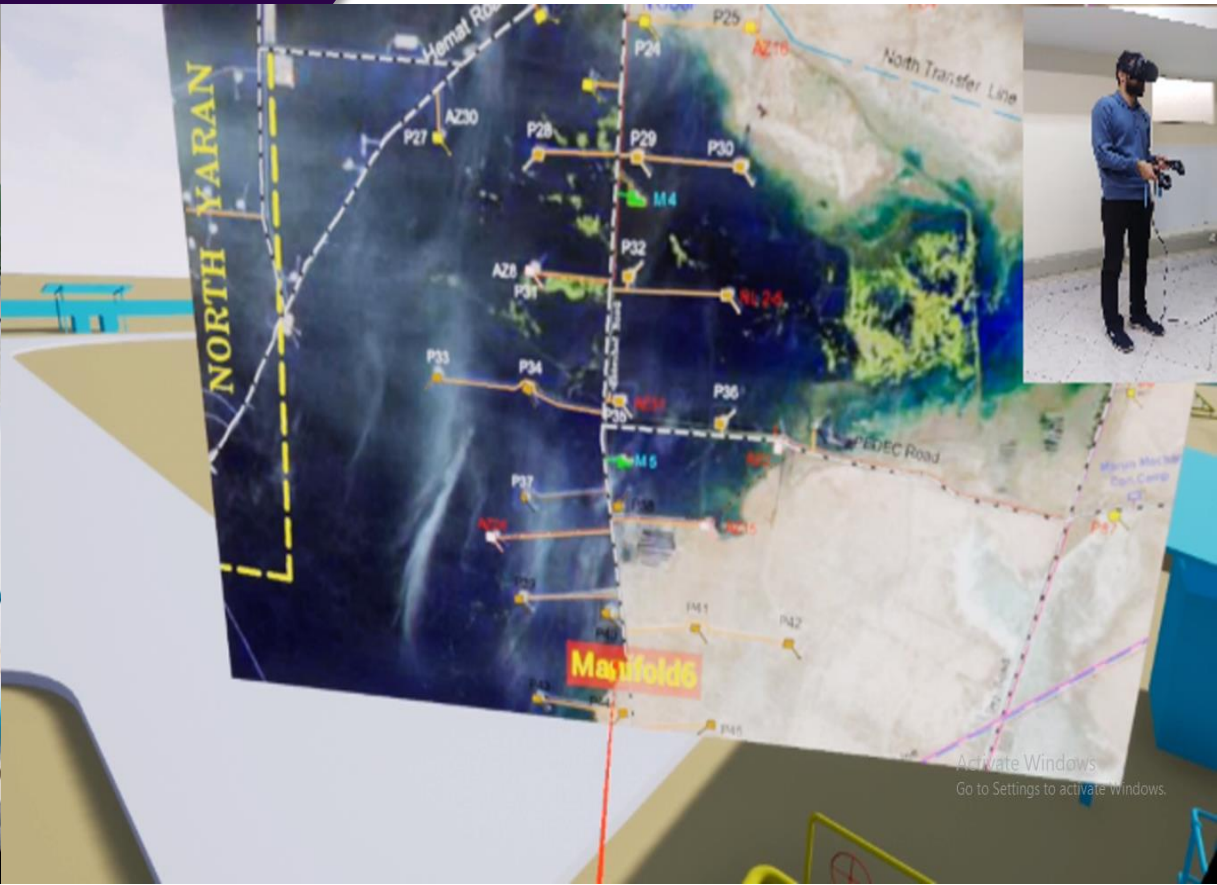
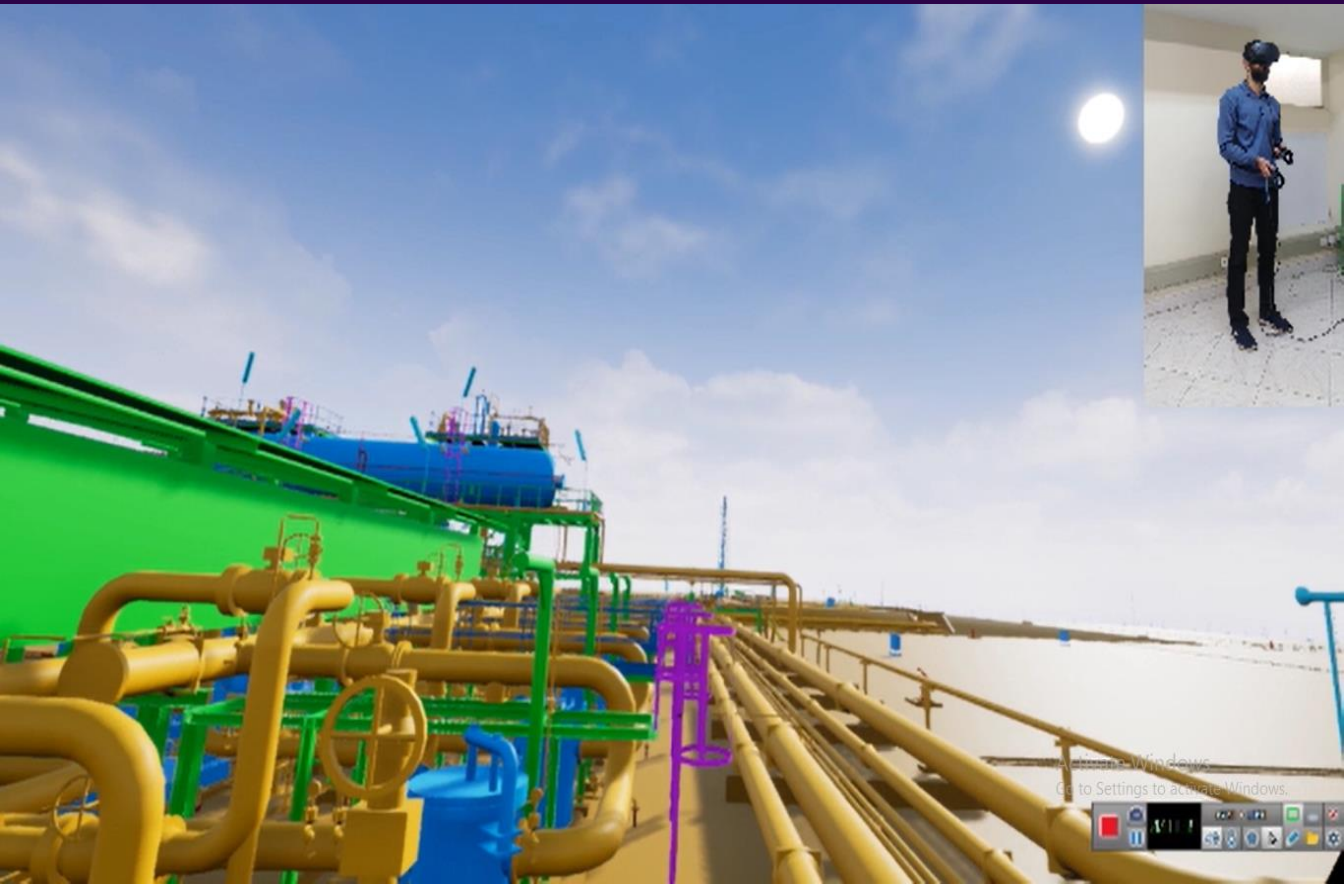


4D AND 5D MODELING

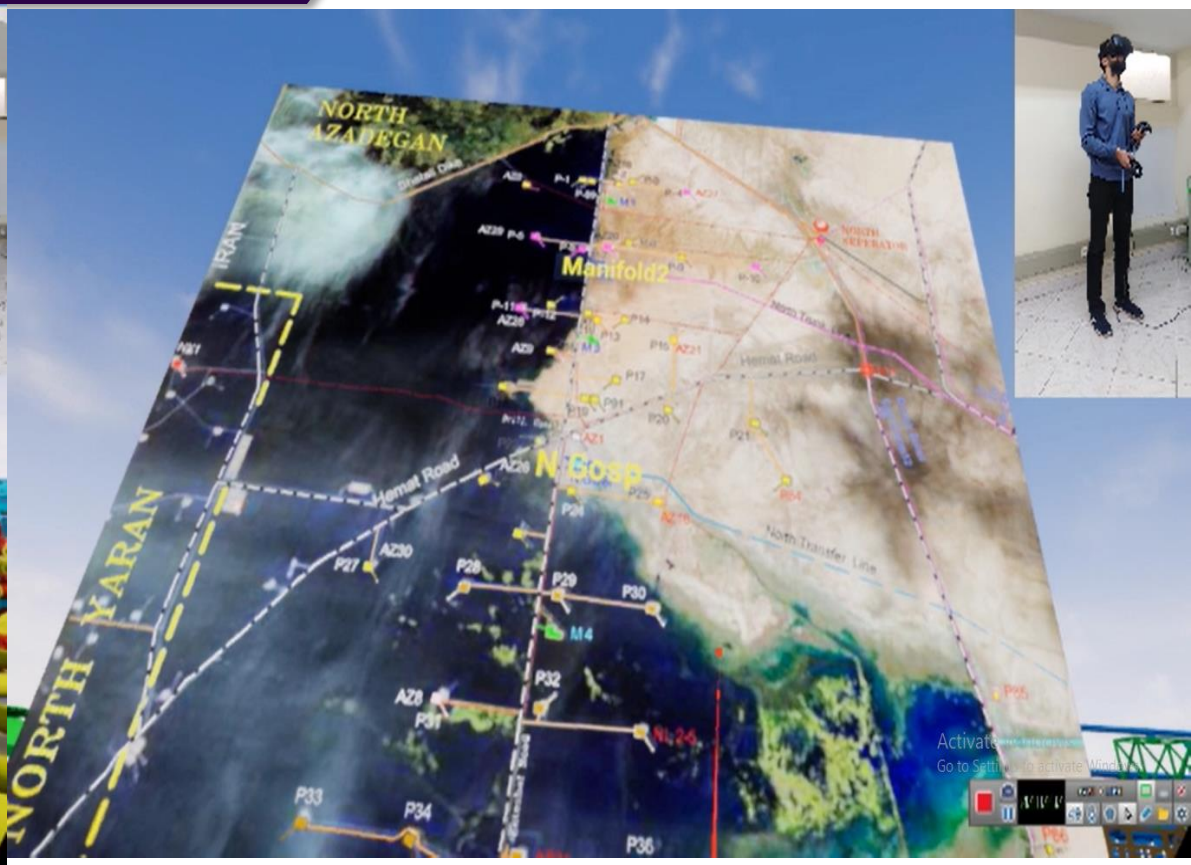
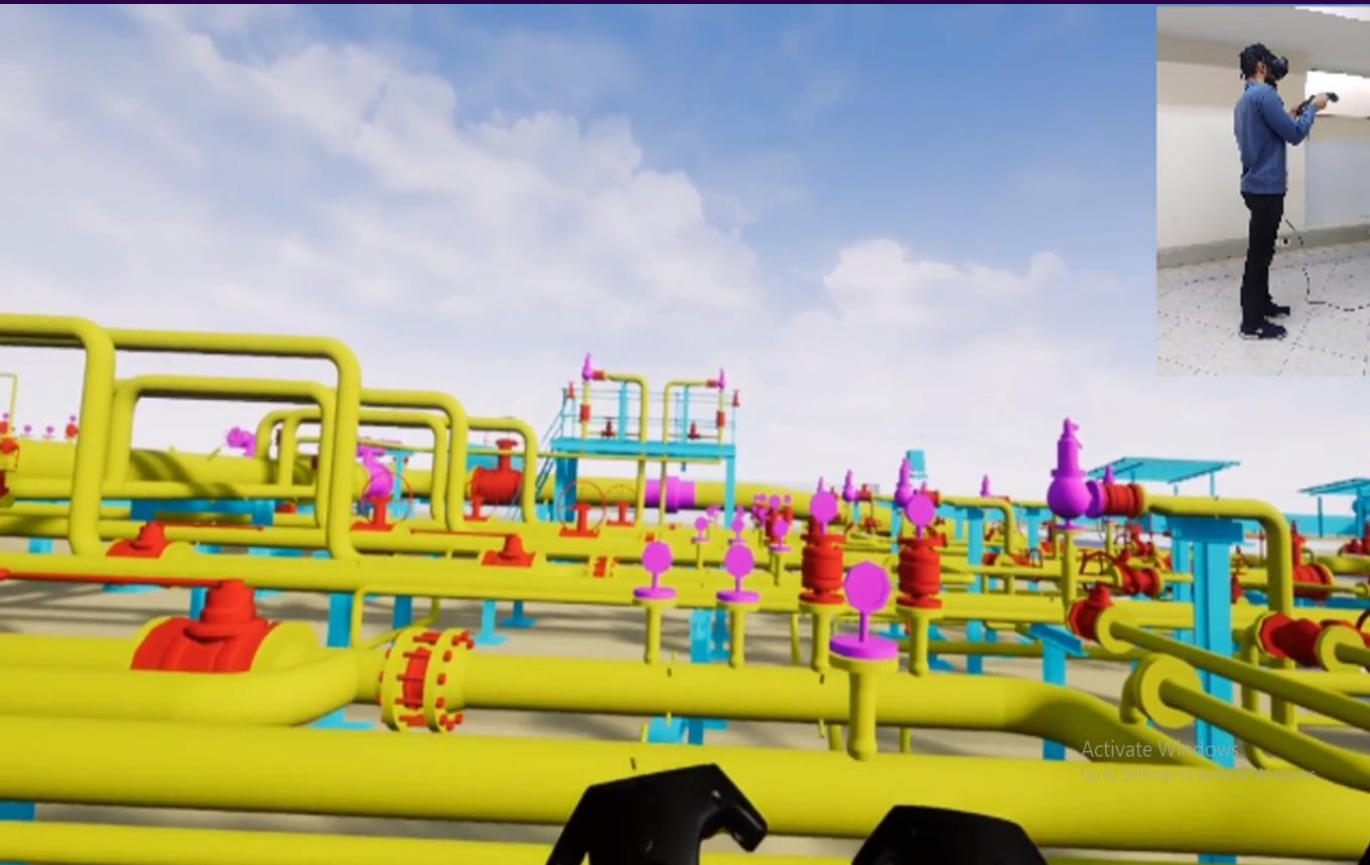


PROJECT CONTROL

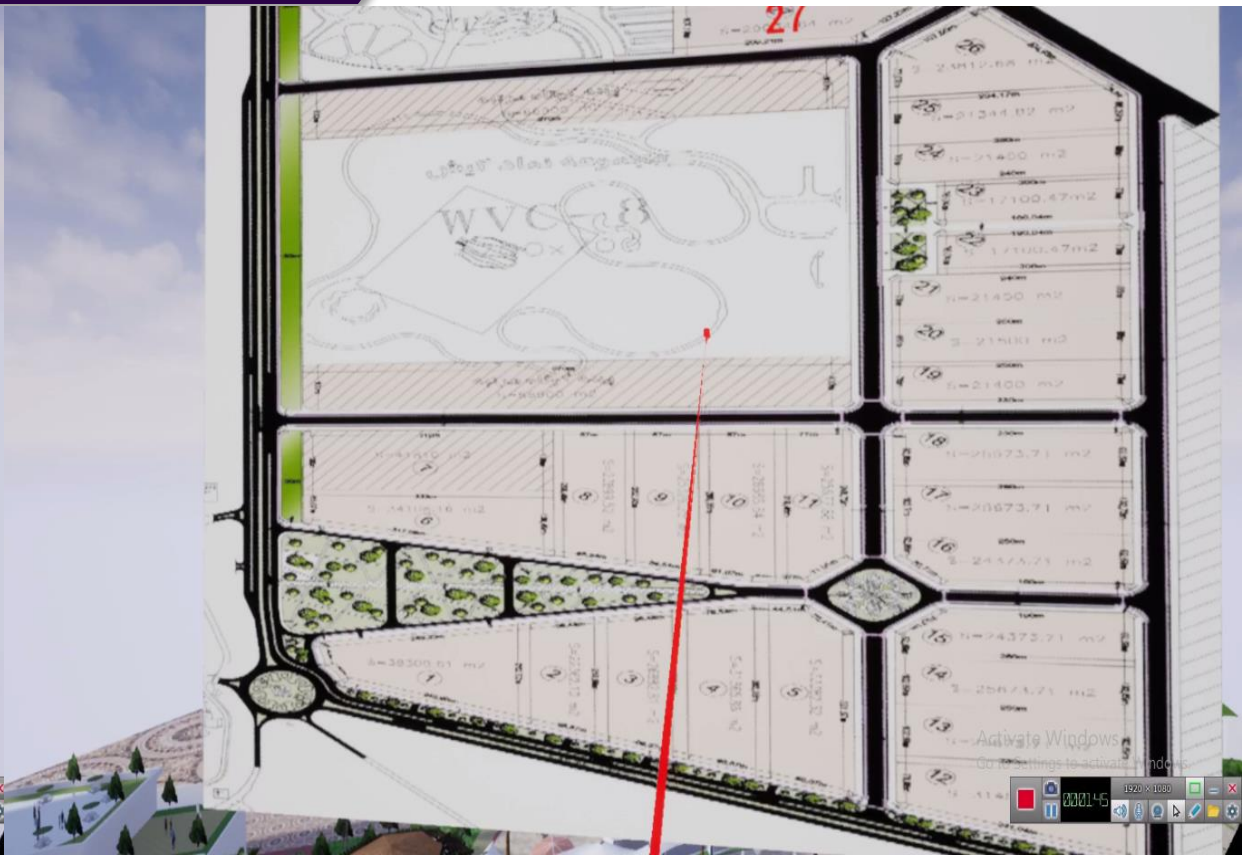
VIRTUAL REALITY



WALKTHROUGH THE MODEL AND PROJECT CONTROL



WALKTHROUGH THE MODEL AND PROJECT CONTROL



Activate Windows
Go to Settings to activate Windows.



Activate Windows
Go to Settings to activate Windows.



WALKTHROUGH THE MODEL AND PROJECT CONTROL

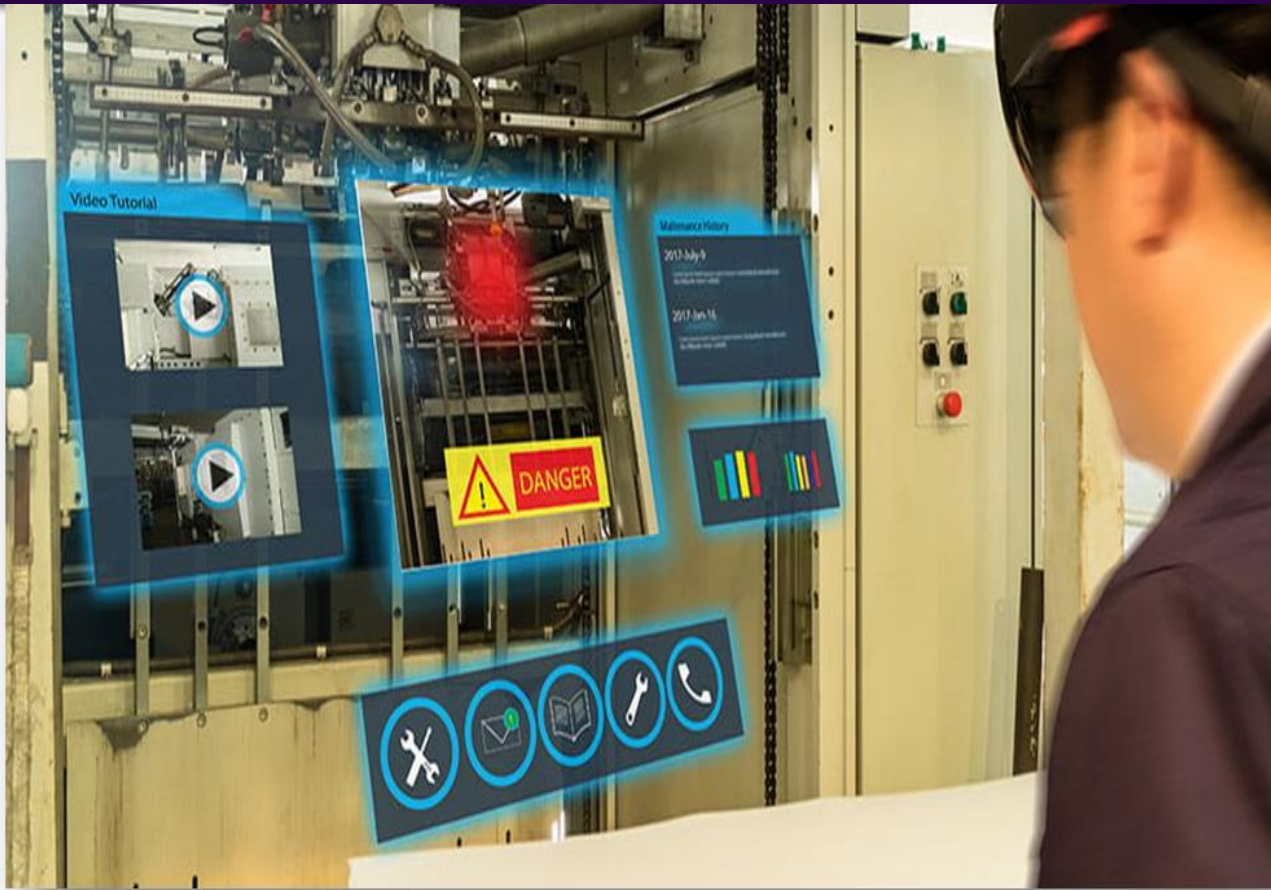
AUGMENTED REALITY



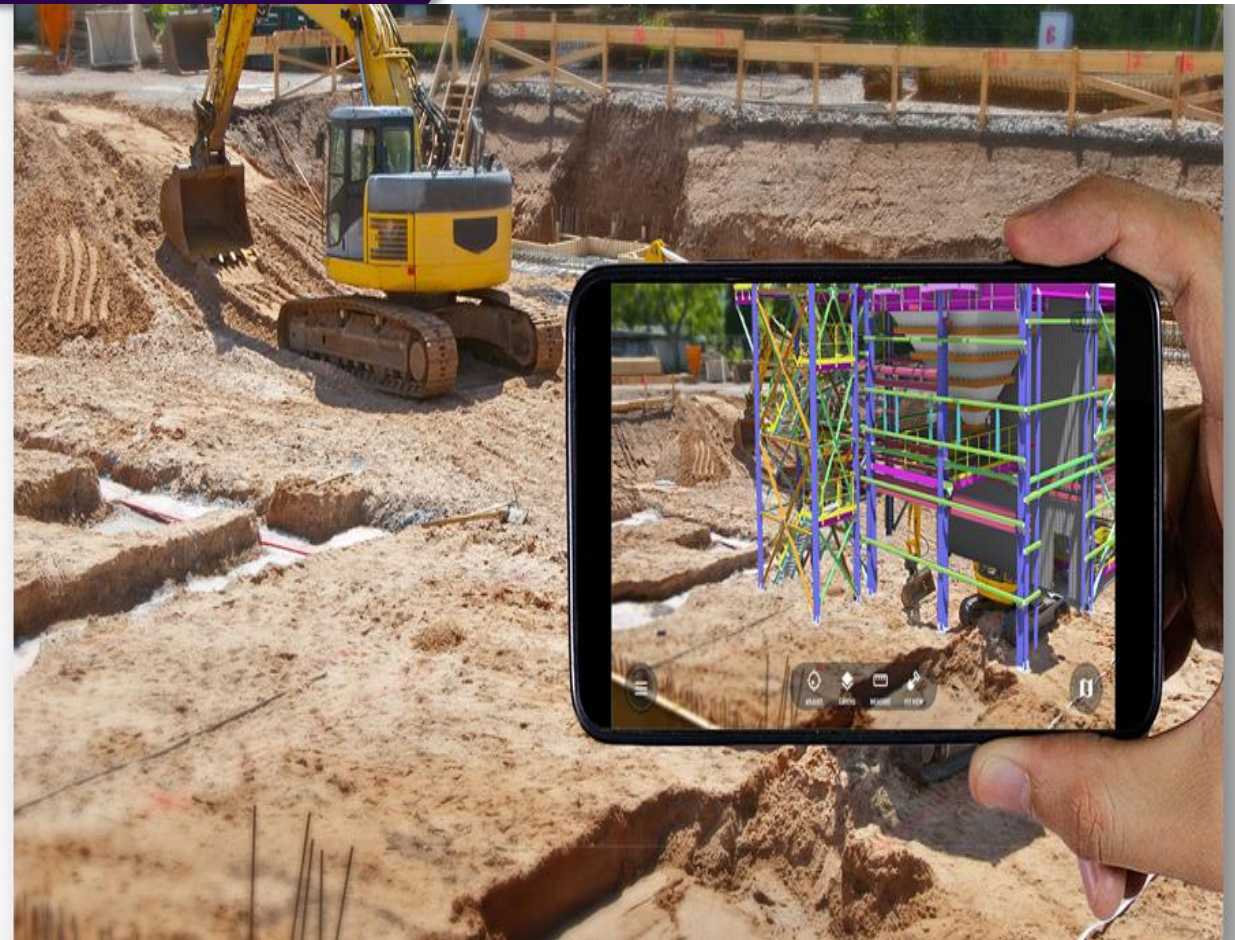
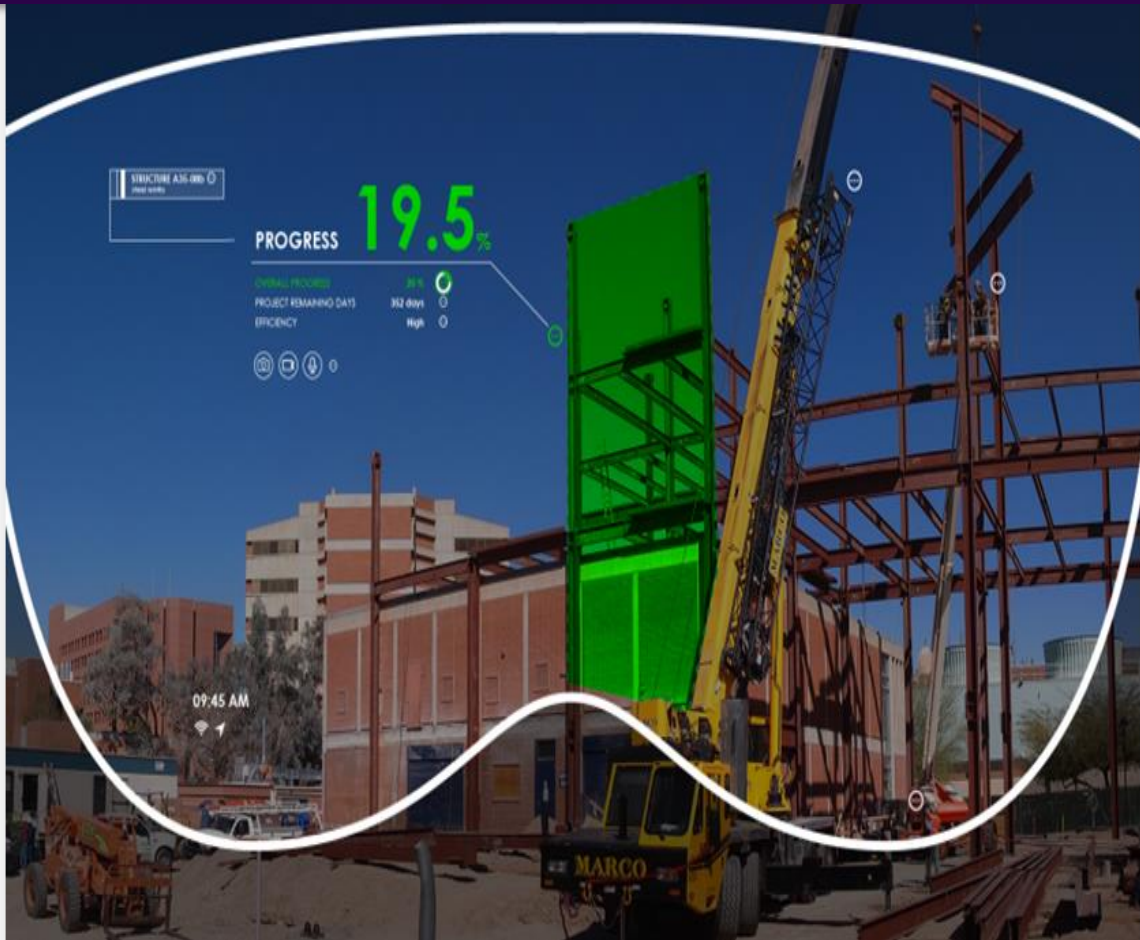
REAL-TIME COLLABORATION



UNDERGROUND CONSTRUCTION



TRAINING/SAFETY



INSPECTION