

# Exploring the Opportunities for Collaborative Interaction in the Architectural Design of Super Hospitals utilizing Virtual Reality

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# Virtual Reality: state-of-the-art

High-end Virtual Reality:

- HTC Vive
- Oculus Rift



Smartphone VR:

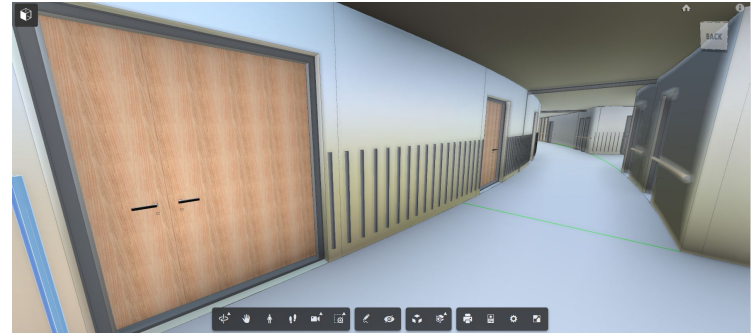
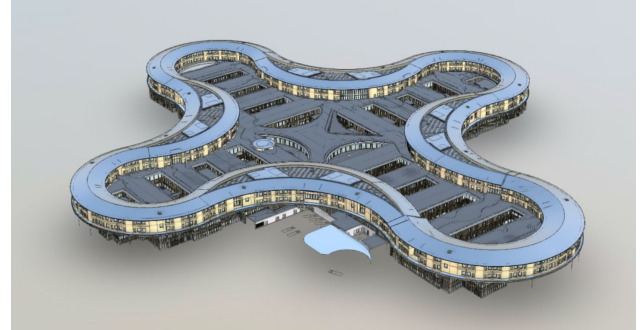
- Gear VR
- Google Cardboard



# Our project

- Academic focus on collaboration and awareness in VR
- NHN (New North Zealand Hospital)
- Modelling a resuscitation attempt in a cardiac arrest scenario
- Evaluating the architectural design

Using Virtual Reality, in collaboration with New North Zealand Hospital (NHN), we are investigating the collaborative factor in a in-hospital resuscitation attempt by cardiac arrest scenario. While virtual reality is already used to experience building plans prior to construction, we examine whether VR can be deployed to test building plans within the context of collaborative challenging situations.



# Video showcase

(1 min video)

# The Scenario - Cardiac Arrest Resuscitation Attempt

**Discovery:**  
Check ABCDE and determine that patient is having a heart attack

**Equipment:**  
Retrieve the defibrillator and medical bag and prepare to shock the patient

**Defibrillation:**  
Evaluate heart rhythm and shock the patient. Needs to ensure CPR is paused and resumed afterwards.

**Finished:**  
Check ABCDE again and determine that patient is breathing and having a normal heart rate.

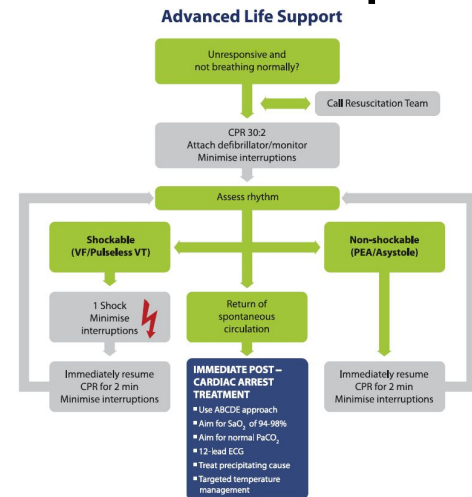
Timeline

**CPR:**  
Continuously perform CPR in order to prevent the patient from dying.

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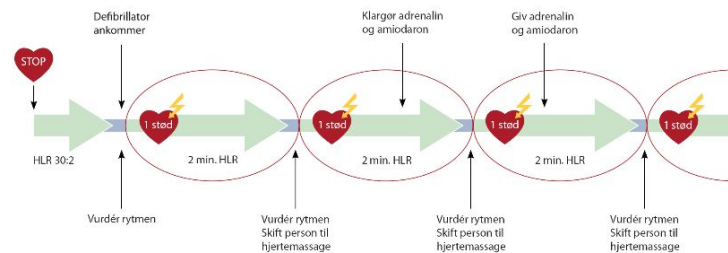
## Collaboration:

Due to stamina limitation, participants are forced to swap actions in order to maintain CPR. The consequence of not performing continuous CPR is a higher death chance for the patient.



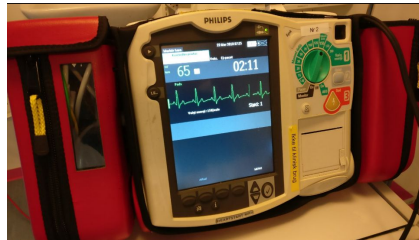
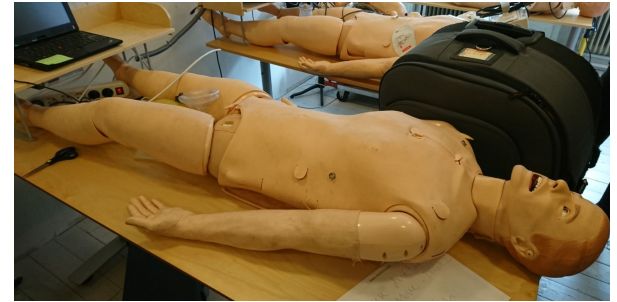
Behandlingssekvens ved VF/pulsløs VT

Cyklus:  
Stad - HLR - (Medicini) - Vurder



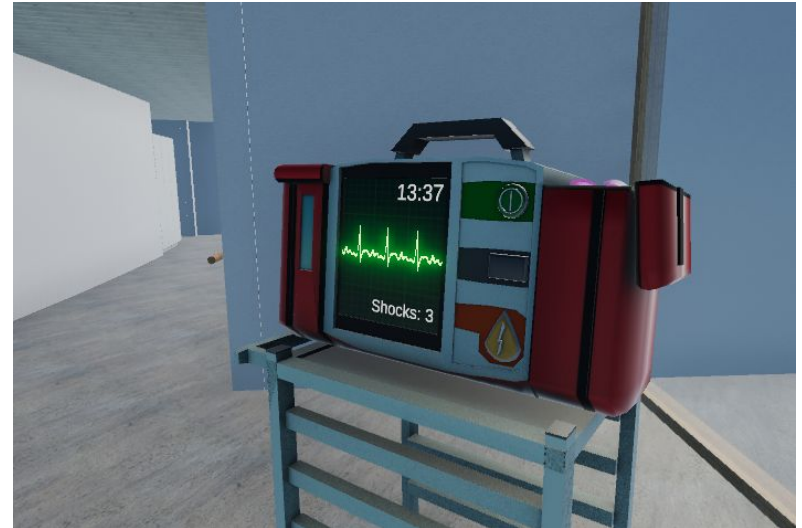
# Approach & Research

- NHN
- Training Videos
- Epiito
- Laerdal ()
- CAMES ([Copenhagen Academy for Medical Education and Simulation](#))
- COWI



# Contributions

- Scenario for detecting possible architectural problems at NHN
- Possible workflow and collaboration training for future hospital personal (doctors, nurses and so on)



# Reflections

VR development requires space - a lab

VR technology develops and improves rapidly

Other use cases:

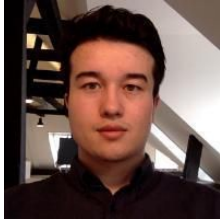
- Medical facilities
- Airports
- Fire stations
- Schools
- Factories





Questions?

Interested in trying it out? Contact Us.



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