

# Team cARe: Augmented Reality in Remote Health Care

**The problem** is that doctors struggle to reach patients in remote areas. To alleviate this accessibility issue, InTouch Health has developed the Vita, a remote care robot. While powerful, the Vita requires a lot of manual input to operate.

**Our goal** was to abstract away these manual processes, by creating automated context sensitive actions, and allow doctors to focus on providing care for their patients.

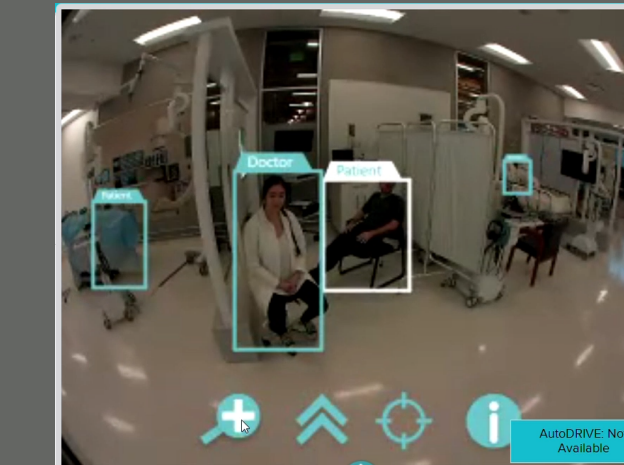
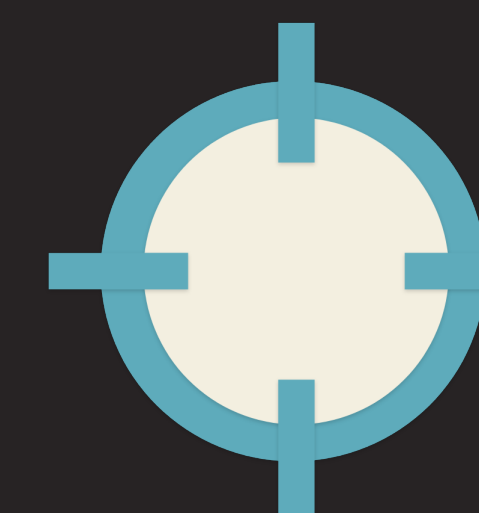
**Our solution** is an augmented reality interface, in which doctors can click on objects and interact using context sensitive actions. Our two module solution is connected by a UDP interface. The **classification module** focuses on real time object detection and facial recognition. The **robot module** draws a visual overlay and uses the Vita's robot API to provide actions.

The **classification** module detects people and monitors in the Vita's video feed. Each object is encompassed in a rectangular bounding box and the coordinates are sent back to the Vita. If a user wants to obtain more information on a person, this module runs facial recognition to pull up the person's staff or patient record.



**YOLO** (You Only Look Once) performs real time object detection of people and monitors. Bounding box coordinates for these objects are sent to Vita.

**TensorFlow** classifies images of 'staff' and 'patients' using retrained Inception-v3. If a user wants more info on a person, Tensorflow will classify them and their corresponding records will be fetched.



**Zoom** improves upon manual zoom by using an object's relative size to determine the appropriate zoom magnitude.



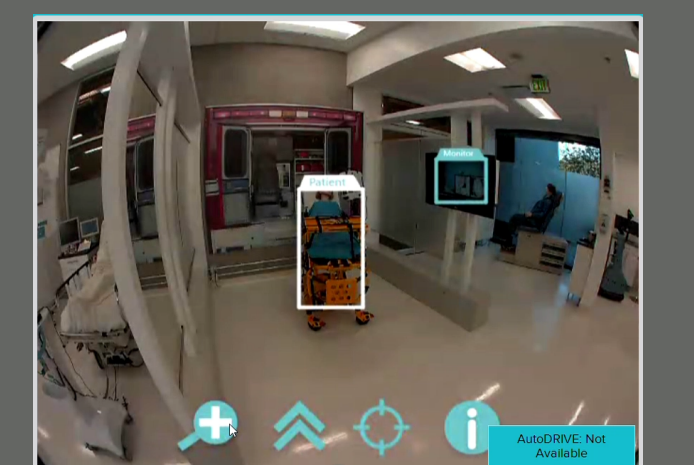
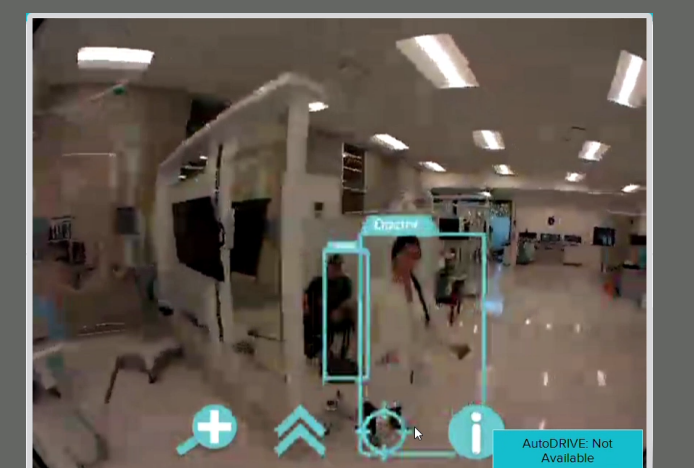
**Approach** provides an automated drive method, by facing the object and moving in a straight line towards it.



**Center** allows the doctor to focus the camera on a object, by using the target's relative coordinates in the image.



**Identify** allows the doctor to access information on a staff member or patient, such as specialty or medical history.



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**P**  
Robot module  
was built with  
Processing

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**InTouch**  
Health