

Augmented Reality Platform for Robotic Systems Design and Interaction (ARPRI)

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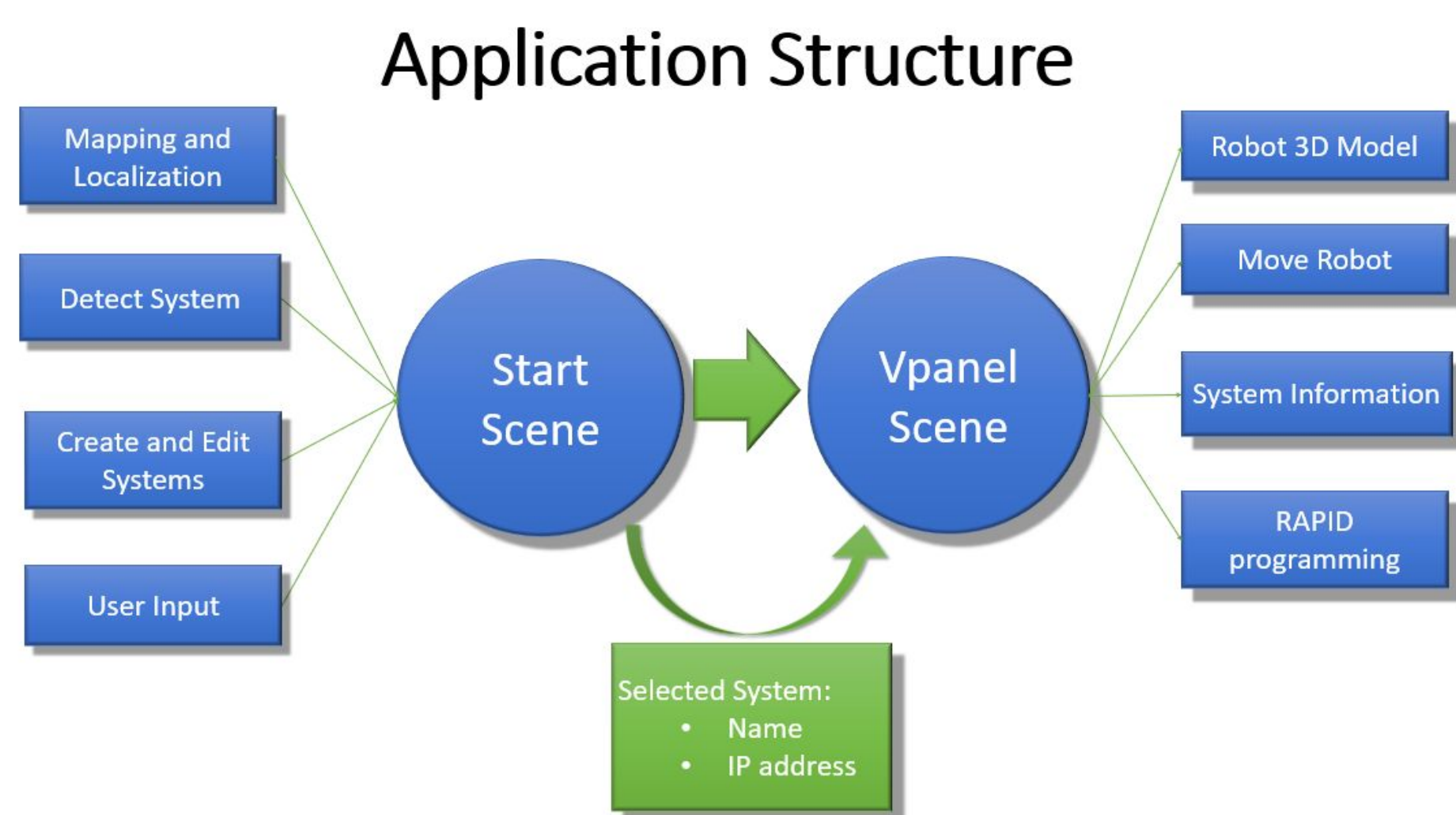
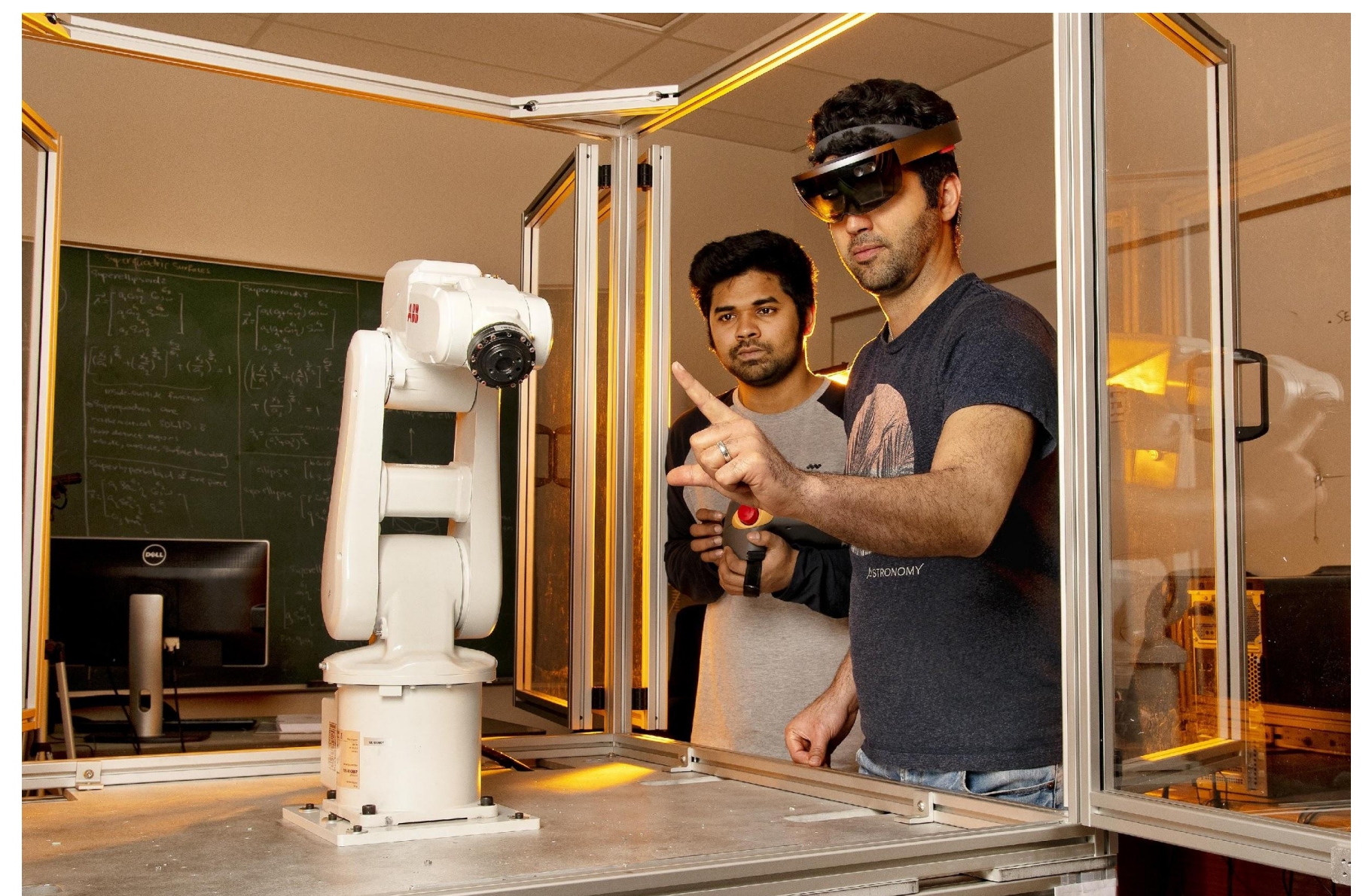
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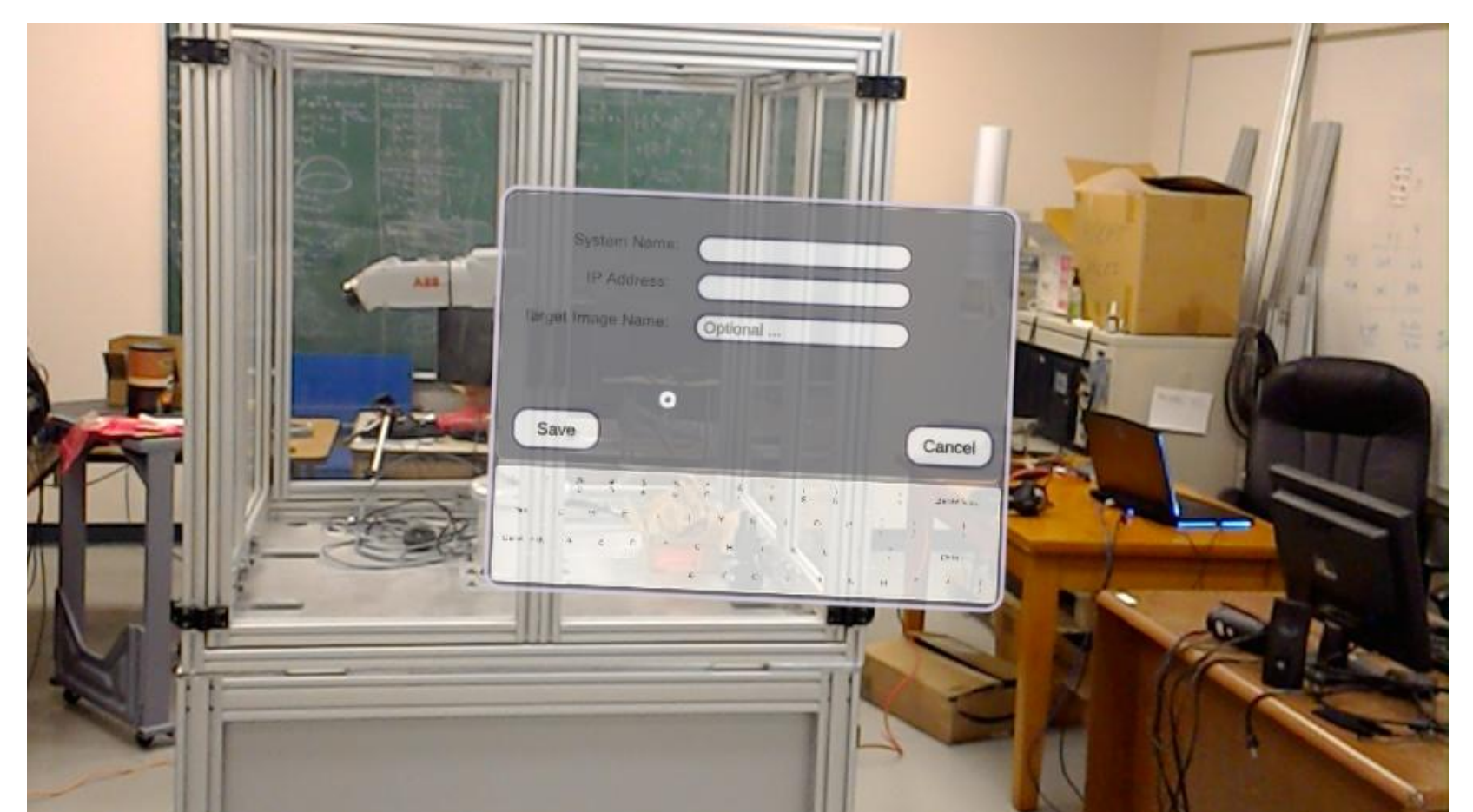
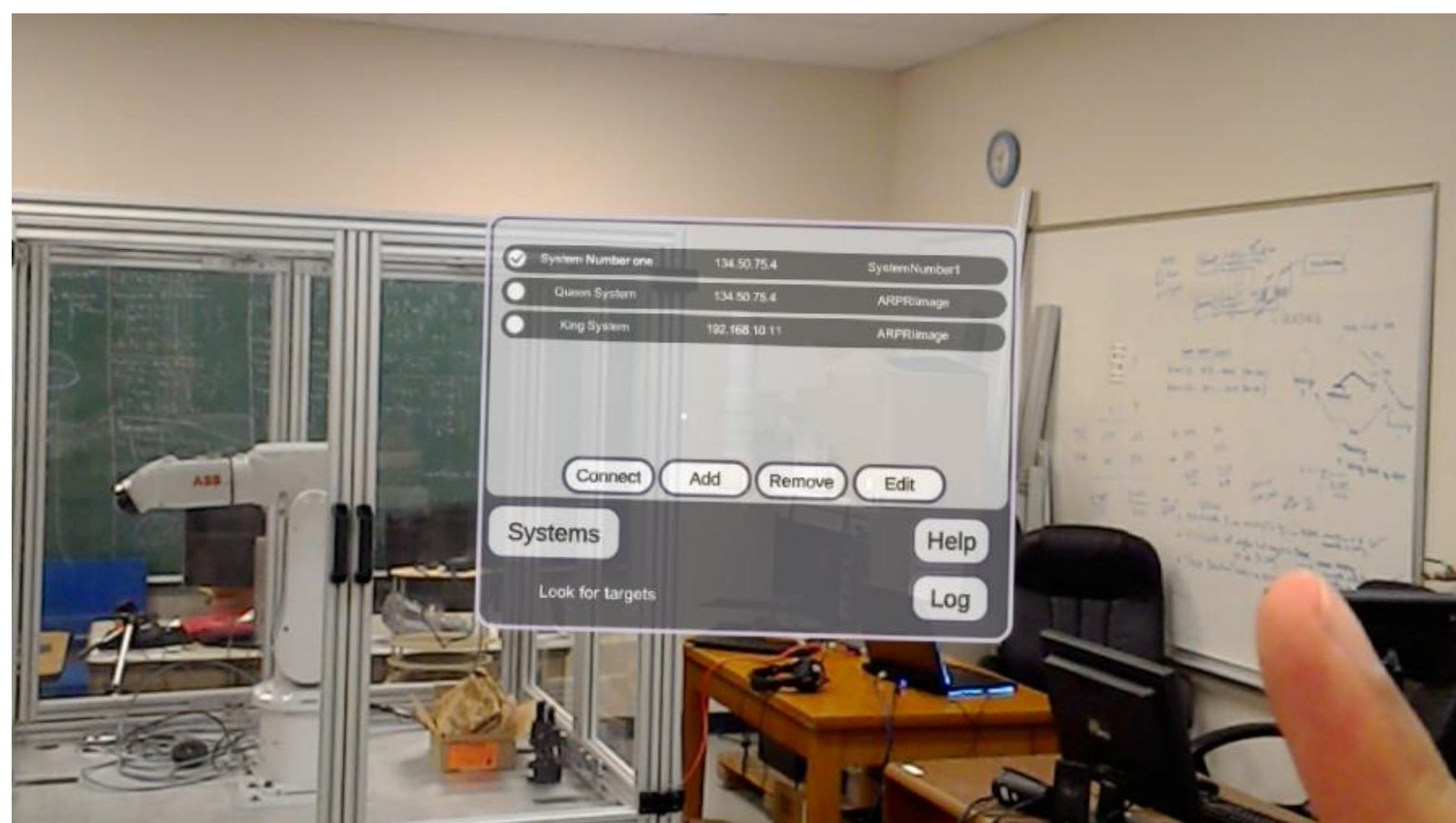
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- Natural human-robot interaction by recognizing human hand gestures and voice.
- An immersive and interactive augmented environment containing useful information and virtual objects and models.
- Real-time robot programming, simulation and testing.
- Quicker training by high level interface including familiar and easy-to-use GUIs.
- Easy and fast diagnosis, debugging and maintenance

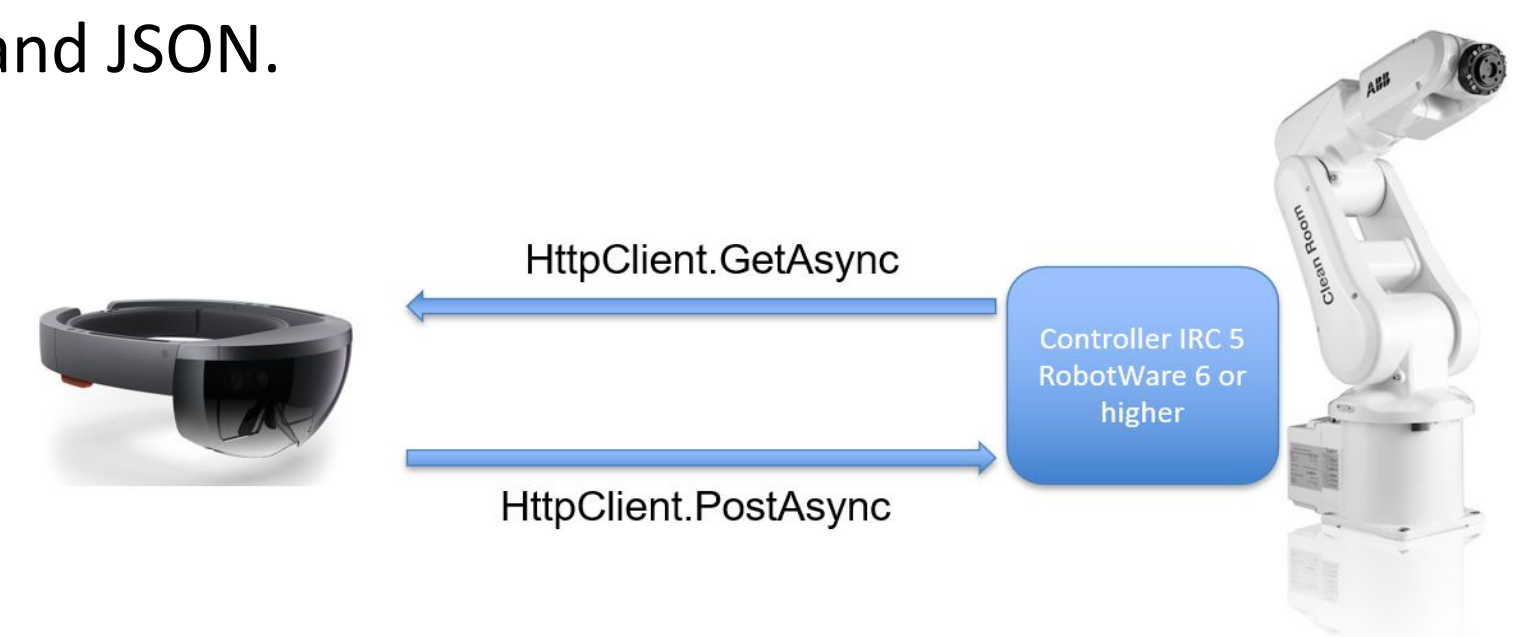
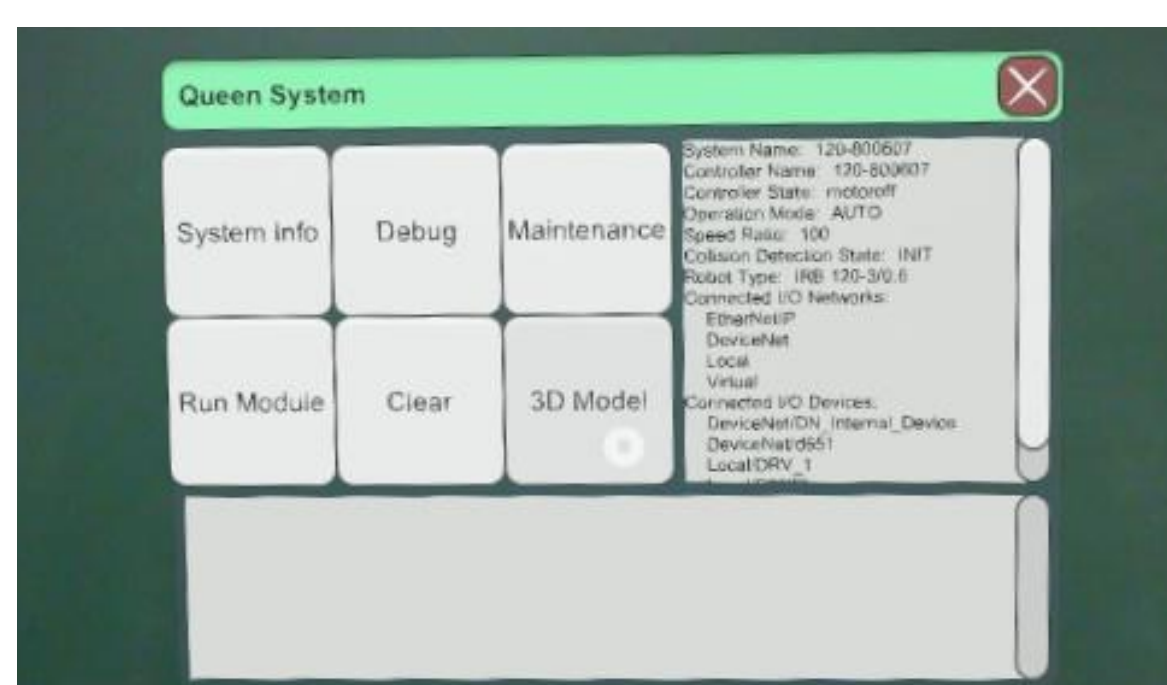


- There are two main scenes in this application i.e. Start and Vpanel.
- There is a database to store robotic systems information.
- User input and intent is captured and interpreted to find the right system to connect to.
- The information from first scene is passed to the Vpanel scene where the actual interaction with the robot occurs.



- Communicating with robot should be done asynchronously so it does not create any lag or delay in updating each frame of the main thread.
- A set of classes are created to convert the controller module and programs to objects that can be used for customizing the AR environment.

- Robot Web Services is a group of RESTful APIs that uses the HTTP protocol. The messages send and received are of type XHTML and JSON.



- Move statements included in 3D model.
- Each move statement lists name of robot target and relative work object.
- Robot world can be moved by its base or rotated by the front sphere.
- Trajectory coordinates extracted from RAPID code are a 3D object augmenting the perception and understanding of the programmer.

