Design Document

1. Core Components
   1. Web App
   2. Ohmni Robot
   3. ROS
      1. TCP Endpoint
      2. TB Control Node
      3. TB Messages
   4. Unity
      1. ROS TCP Connector
      2. ROS Visualization Suite
      3. ROS URDF Importer
      4. User Controller
         1. Publishes navigation
         2. Subscribed nodes carry out action
            1. Digital Robot (Robot AGV Controller)
            2. Physical Robot (ROS TCP Endpoint and TB Control Node)
      5. Robot AGV Controller
         1. ROS Input (Digital Shadow Mode)
            1. Receives from Topic
            2. Publishes to Digital Twin
         2. (Test) Keyboard Input (Controller Mode)
            1. Publishes to Digital Twin
            2. Publishes to Robot
      6. Ohmni Digital Robot
      7. Graphical user interface

         Description automatically generated
      8. Sim Center Environment
      9. Human Characters
      10. A screenshot of a computer

          Description automatically generated with low confidence
2. Auxiliary Components
   1. ROS Components
      1. LIDAR Node
      2. Azure Depth Camera Node
   2. Unity Components
      1. Human Controller Script
      2. Bolt Scripting Language (or Graph View)
         1. Introduce Graphical Model of Work-System
         2. Verification of Work-System with Simulation
      3. XR Tool Kit