

PENNSYLVANIA

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Practical Application of a Telepresence Robot

Project Background: Benjamin's grandmother lives in a senior residence facility, and he noticed after several visits with her that some of her fellow residents had few or no visitors. He recognized that for many reasons, in-person visits at the facility are not always possible, and wanted to find a new way for residents to connect with family and friends. He decided to design and build an interactive robot, through which people could virtually visit their loved ones at the facility. He set out to answer two questions:

1. Is it possible to build a low-cost telepresence robot?
2. Would seniors feel comfortable using this technology as a means of communication?

Tactics and Results: Benjamin built his robot, called MAYA (Me And You Anywhere), out of fairly inexpensive materials, using a trash can for the body and an iRobot Roomba® robotic vacuum cleaner for the base. He also attached a monitor and a webcam to the top of the robot, and fitted an Acer Aspire computer in the base. He configured and programmed software to control the robot, giving him the ability to move the robot on its Roomba® base and to videoconference via Skype on the monitor. To test the robot, he brought it to his grandmother's senior residence facility, introduced it to a group of residents, then left the room to control MAYA remotely via laptop. He spoke to the residents through a webcam mounted on his laptop, gave MAYA commands that directed its movement around the room, and later gathered residents' opinions and reactions to interacting with MAYA. He concluded that residents enjoyed interacting with the robot, and thought it added another dimension of reality over phone calls or standard video chat.

Other Interests: Benjamin's passion is robotics and he loves the challenge of building robots from recycled parts salvaged from yard sales. He also enjoys programming and coding in Java and C++. A black belt in Tang Soo Do, Benjamin also participates in karate and Hapkido.

Career of Interest: Electrical engineer. "I have always loved electronics. I like repairing/creating electrical equipment and seeing things work."