AETHON

Press Release

Robot Delivers Medications at University of Maryland Shock Trauma Center: Advanced Technology Allows Robot to Steer Around Obstacles and Call for Elevators

May 10, 2004 — UNIVERSITY OF MARYLAND — A robot named Mr. Gower now navigates the hallways of the R Adams Cowley Shock Trauma Center, riding elevators and opening doors on its own. Its mission is to deliver patient medications to nurses' stations. The robot, named for the pharmacist in the movie "It's a Wonderful Life," has an onboard computer and advanced infrared "light whiskers" allowing it to steer around people and obstacles. The robot even speaks.

The robot, also known as Tug, streamlines the delivery process, getting medications to patients faster. "Medication delivery takes a lot of time," explains Neelesh Vaidya, RPh., a clinical pharmacist at the University of Maryland Medical Center and manager of the trauma pharmacy. "When Tug makes deliveries, the pharmacy staff can spend more time preparing medications and answering questions from doctors, nurses and others on the patient care team."

The Shock Trauma pharmacy serves as Tug's home, housing the battery charger and the terminal used to direct and track the robot on its rounds. An onboard computer contains a map of the facility, and a wireless communication system throughout the building sends information to the robot as it passes one of several access points, which look like small boxes mounted on walls. These same access points also send information back to the pharmacy for tracking and to computers at Aethon, the company that manufactured Tug. Aethon engineers can use this system to do remote troubleshooting.

The navigation system also allows Tug to send wireless signals to open automatic doors and signal elevators; it waits three seconds for people to exit before it gets on the elevator. "We've designated one particular elevator for Mr. Gower to use, which helps for a quicker turnaround," says Mr. Vaidya. "This elevator is not involved in transporting patients and has fewer people riding on it. Once Tug summons this elevator, it goes into service mode and will not pick up any more passengers. However, if people are already there, the robot can speak and tell them if it needs to get out of the elevator."

Programmers can teach Tug to say hundreds of phrases. Right now, its vocabulary includes sentences like "Calling elevator" and "Your deliveries are here." The robot also uses warning tones and lights to signal that it's starting, stopping or backing up.

When the robot's infrared light whiskers detect an object or person in its path, the robot stops 18 inches from that obstacle and waits to see if it moves. If the object doesn't move, Tug gives a verbal command, "Waiting to proceed." If the obstacle remains after several more seconds, Tug simply steers around it and continues on its way.

When Tug arrives at a nurses' station, someone must enter a code to unlock the medication drawers. As an added security measure, each drawer has a specific key, so a nurse can only open the drawer for his or her particular station. Tug is not used to transport controlled substances. The robot also has an alarm system to prevent tampering.

– more –

Once the nurse has finished unloading the medications and locking the cart, he or she presses the large green “Go” button on top of Tug, and it proceeds on its route. If the nurse needs more time, he or she can press the large red “Stop” button. If no one attends to Tug after several minutes, it moves on to its next stop and sends a voice alert back to the pharmacy saying, “Delivery not accepted.” Pharmacists then call the nurses’ station to follow-up. Tug also automatically locks the drawers if someone forgets to do it.

“We believe Tug will allow us to get medications to the patients faster,” says Marc Summerfield, director of pharmacy services at the University of Maryland Medical Center. “It can pull up to 500 lbs and it can work for 12 hours after charging its batteries for only two hours. With growing personnel shortages in both pharmacies and nursing, we hope Tug can take over some of the load of delivering medications, allowing us to have more time to work on other things.”

Pharmacists are first testing the robot at Shock Trauma and hope to expand the program with more Tugs throughout the medical center. Tug can also be used to return medications, which helps to minimize the clutter of unwanted and discontinued medications. Shock Trauma, located at the University of Maryland Medical Center in downtown Baltimore, cares for more than 7,000 injured patients each year. Shock Trauma is the Primary Adult Resource Center (PARC) for Maryland’s emergency medical services system, providing the highest level of trauma care in the state.

High-resolution photos in digital format are available at http://www.aethon.com/pressroom/hires.html.

# # #