Engineering Students Build Automated Pill Dispenser | CPD

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Engineering students Kris Payne (left) and Trevin Hafen demonstrate the Big Blue Pill Dispenser. An engineering capstone project dubbed the ‘Big Blue Pill Dispenser’ made its debut at Utah State University’s Center for Persons with Disabilities yesterday. Kris Payne, a senior electrical engineering student, and Trevin Hafen, a senior mechanical engineering student, made the presentation to several staff members, including Director Bryce Fifield and Assistive Technology Lab Coordinator Clay Christensen. An Android tablet computer controls the device, which dispenses medications up to four times a day at programmable times. An audio prompt reminds the user to take the medications. If the pills are not removed from the tray, they drop to a locked compartment before the next dose is dispensed to prevent accidental overdose. A caregiver loads the dispensing tray and programs the device using a touch screen which requires a password. A dispensing log can either be viewed on the touch screen or e-mailed to the caregiver. A text message can also be sent automatically to the caregiver if the medications are not retrieved from the dispensing tray. The prototype built by the engineering students will be installed in the CPD’s Assistive and Rehabilitative Environments (AstRE) Lab Smarthome apartment, where automated assistive technology devices are tested and refined.

A closer view of the pill dispensing tray. At this point, the Big Blue Pill Dispenser’s programmed cycle can’t be interrupted for refilling, and loading the dispensing tray is time-consuming. The students’ recommendations for the next design team include creating a template so the tray will be easier to load, and creating a way to pause the programming so the dispenser doesn’t have to be completely empty to reload. Despite these issues, “It’s still quite an accomplishment,” Christensen said. Hafen acknowledged the device’s current limitations. “It does have some flaws, but it proves that it can be done,” he said. “It’s a proof-of-concept design.” Payne said it was very different from the capstone projects other design teams worked on. “It was the only one that had electronics,” he said. “I learned a lot about Java programming.” “It was a more realistic project,” Hafen said. “This is what happens in industry.” The prototype is about the size of a microwave oven, but Payne said it could be made smaller. “If it went into production, it would be injection-molded plastic,” Hafen added. The Big Blue Pill Dispenser will be demonstrated to the public from 4 to 4:15 p.m. on Thursday, April 25 in EL 207.

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