

## **Automated Dispensary Mechanism for Government Hospitals**

C. J. Rupasinghe, D.R.V.L.B.Thambawita

*Department of Computer Science and Technology, Uva Wellassa University, Badulla,  
Sri Lanka*

Dispensing medications in a hospital is a time consuming operation. In usual practice, the pharmacist need to dispense tablets and capsules with a simple tray and spatula. A typical hospital dispensary has only a few number of pharmacists causing long patient queues, the situation can be commonly experienced in most of the government hospitals in Sri Lanka. This inspired to introduce the concept of automated medication dispensing for Sri Lanka. This research introduces an automated solution for medication dispensing in outpatient dispensaries. The key objective of the study was to reduce the time consumption of drug dispensing. A desktop application was developed to generate prescriptions and an automated drug dispensing has been implemented. The solution comprised of a software artifact and an electronic hardware unit. The software tool is connected with a fingerprint reader which is used for patient registration. Patients can register with the system when he or she comes to the outpatient dispensary at first time. The pill container has three main parts: initially the upper part of the pill container is fed with tablets to be counted, and the middle part for hold some amount of pills to fetch the rotating pill catcher. Then the lower part called rotating pill catcher for catch pills one by one and carry them to the exit gate of the pill container. This pill catcher rotate with the help of a stepper motor. An infra-red sensor keeps counting the number of pills which are being released through the exit gate. If the count is equal to number of pills in the prescription, the motored mechanism will stop. Furthermore, two mechanisms were adopted for the tablets counting process. The first mechanism is based on a vertically rotating wheel which have several openings to catch one pill at one time. The second mechanism is based on a horizontally rotating round plate which have openings to catch one pill at one time. The process which is based on the horizontally rotation plate has achieved a considerably accurate pill count by compared to the vertically rotating wheel version. It was noticed that the vertically rotating wheel model was blocked most of the times because it cannot hold exact one pill at a time. Therefore horizontally rotation plate can be introduced for as an effective pill counting mechanism.

Keywords: Pill catcher, Pill fetcher, Infrared sensor