Smart Medication Dispenser – Aid for the Elderly

The Smart Medication Dispenser (SMD) is designed to assist elderly people in safely managing complex drug regimens in the private home setting. The SMD may enable the elderly to successfully age in place, and to increase years of life by reducing the incidence of problems with their medication regimens. The proposed Smart Medication Dispenser (SMD) integrates advances in several basic technologies, including: communication, artificial intelligence, automatic control, smart materials, and small-scale sensors and actuators.

The concept of the SMD is comprised of a tray that holds a series of smart bottles, each for different medication. This tray can handle up to twenty smart bottles. When it is time for a medication, the SMD will inform the patient, through a speaker system, a display, an optional pager and flashing lights, which medication(s) must be taken. Each smart bottle will release the correct amount of medication, per apriori communicated and pre-programmed dosage. This system is applicable to both oral and liquid medications. The bottle has a self-locking mechanism to prevent taking extra dosages. After a dose is taken, the device resets itself, measures how much medication is left, and if necessary, informs caregiver or pharmacists about any abnormalities, missing dosages, need for refill, etc. As the bottle is put back on the tray, it communicates necessary information to the tray. Thus, if patient, caregiver, or others need to monitor the drug taking pattern and profile, such information can easily be accessed.

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