

MEDSense

Pill Dispensing and Communication Device



Outline



- Background
- Current Products
- Objectives
- Requirements
- Project Description
- Budget
- Conclusion

Background



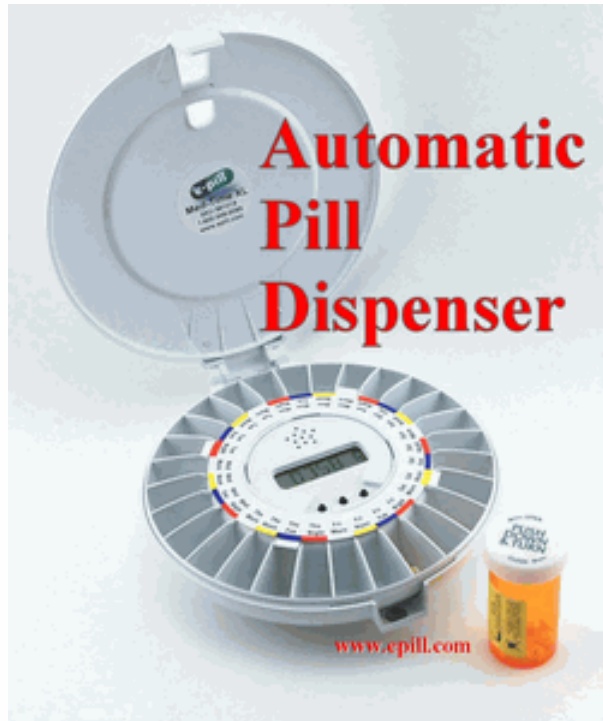
- "We streamlined the FDA's drug approval process in response to concerns about its cumbersome nature. We took those steps with one objective in mind: to move drugs to the marketplace more quickly. The result, however, has been an increasingly cozy relationship between the FDA and the pharmaceutical industry." --Congressman Rahm Emanuel, former senior advisor to Pres. Clinton, as quoted in *The World is Flat*



MEDSense:

“Worrying about your health, so that you don’t have to...”

Current Market



Med-Time Automatic Pill Dispenser:

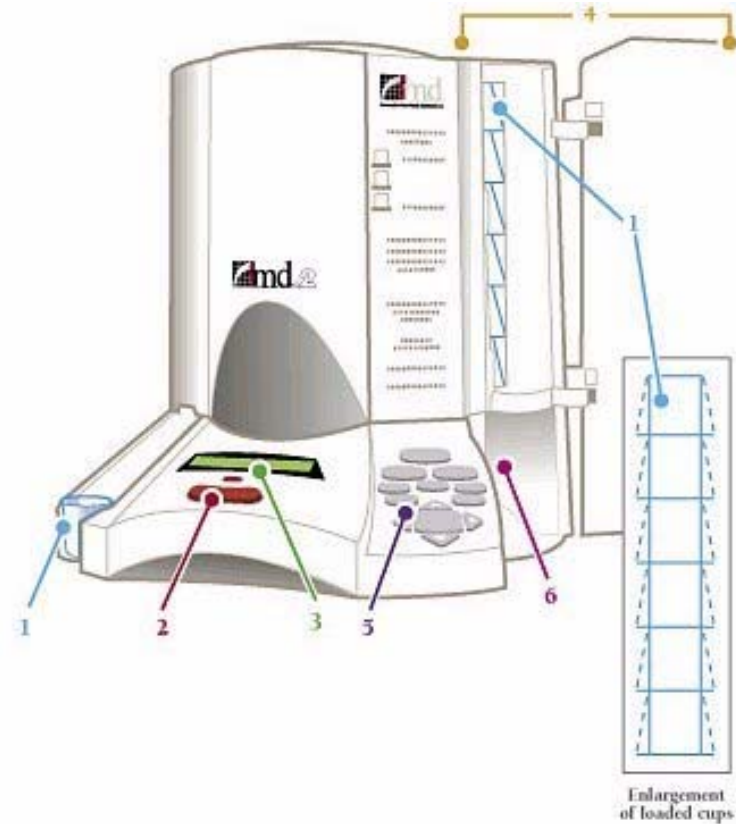
- Releases medication at prescribed times
- Too small for people with motor skill problems to use
- Does not send offsite alert or cut pills

Current Market



Monitored Automatic Pill Dispenser MD2:

- Alarm system, offsite alert
- Bulky and expensive
- Incapable of cutting pills in half



Objectives



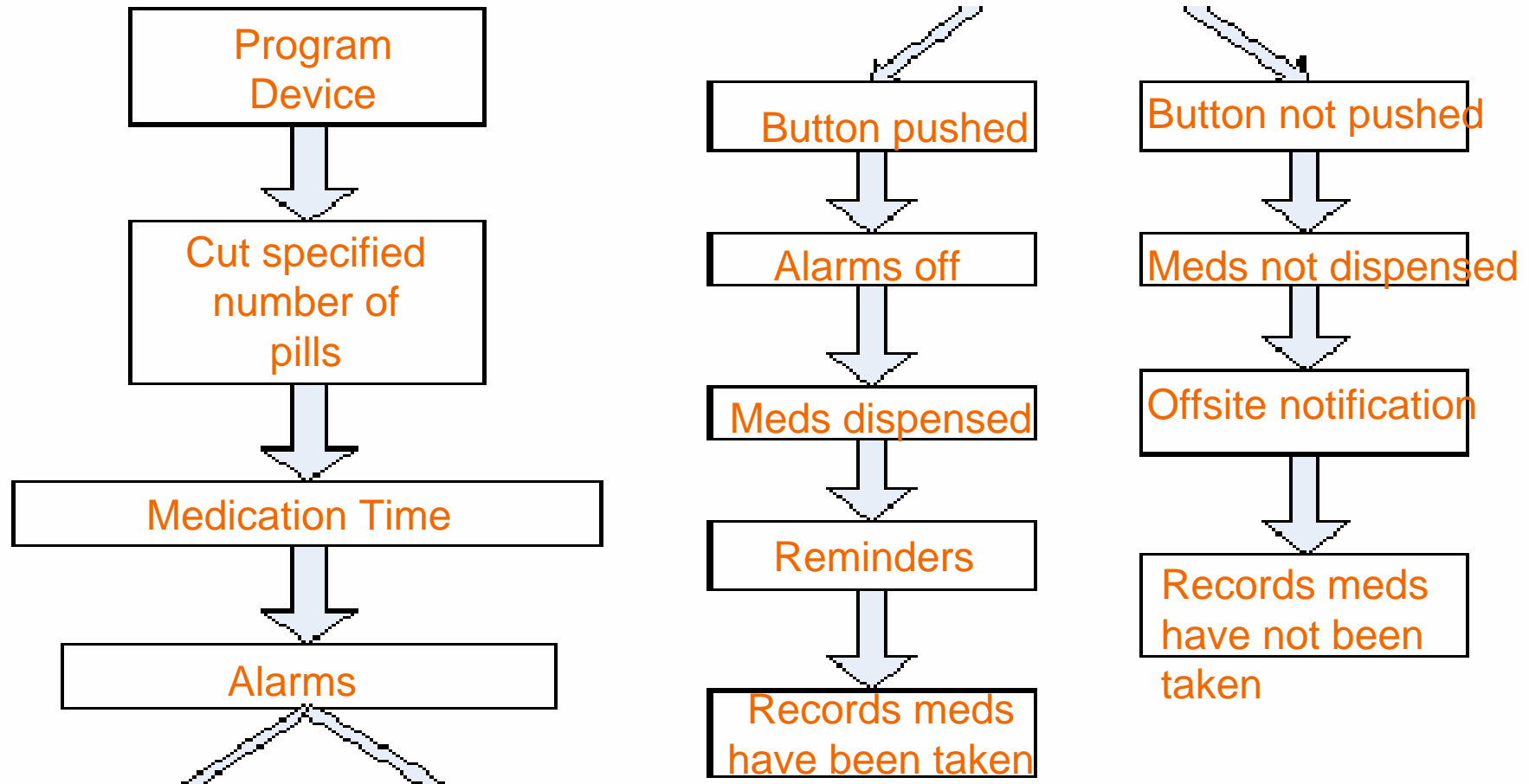
- Affordable, easy-to-use pill dispenser
- Accommodate a wide variety of users
- Manage user's prescription medication schedule
- Simplify life

Requirements



- Multi-modal alert system
- Accurately cut pills in half
- Dispense medication at programmed times
- Offsite alert
- Simple user interface
- Protect the safety and security of the users and their families

Project Description



Seven Subunits



- Notification system
- Cutting mechanism
- Schedule programming
- User interface
- Pill transportation mechanism
- Offsite alert
- Physical properties

Notification System



- Multimodal alarms: visual and audio
- Uses previously programmed schedule to notify patients when it is time to take medication
- Ability to alert patients at chosen amount of time before scheduled medication time
- Notification to refill medication

Schedule Programming



- Simple program for patients to self-program
- Questions asked by device and answered by patients
- How many pills per dose?
- How many times per day?
- When is the expiration date?
- Alternative design: scanning device

User Interface



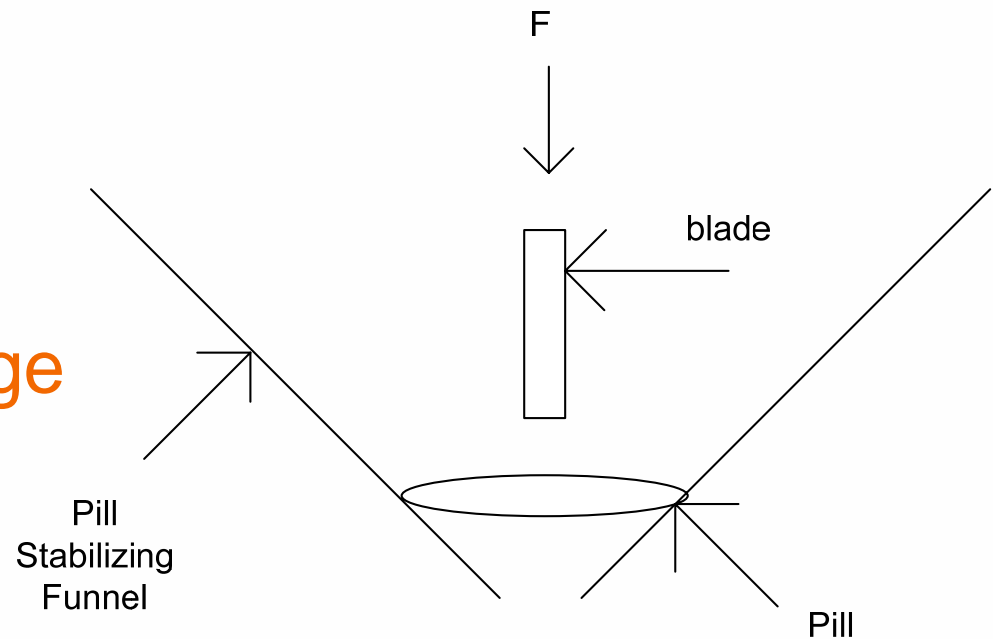
- Simple keypad with Braille
- Large LCD screen
- Easily visible in daylight
- Easy-to-use for patients intimidated by technology



Cutting Mechanism



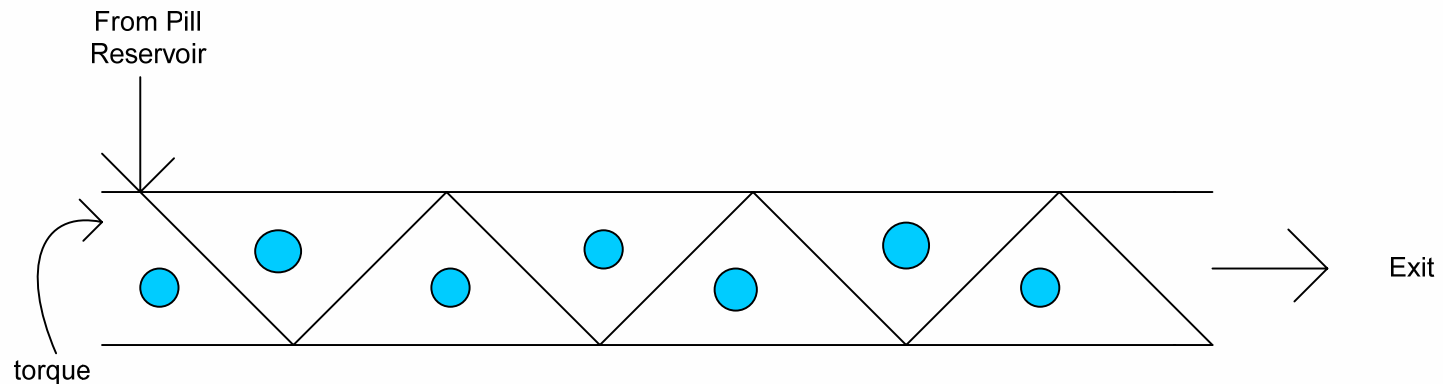
- Steel blade powered by motor
- Pill stabilized by conical design
- Accommodate range of pill sizes and shapes



Transportation Mechanism

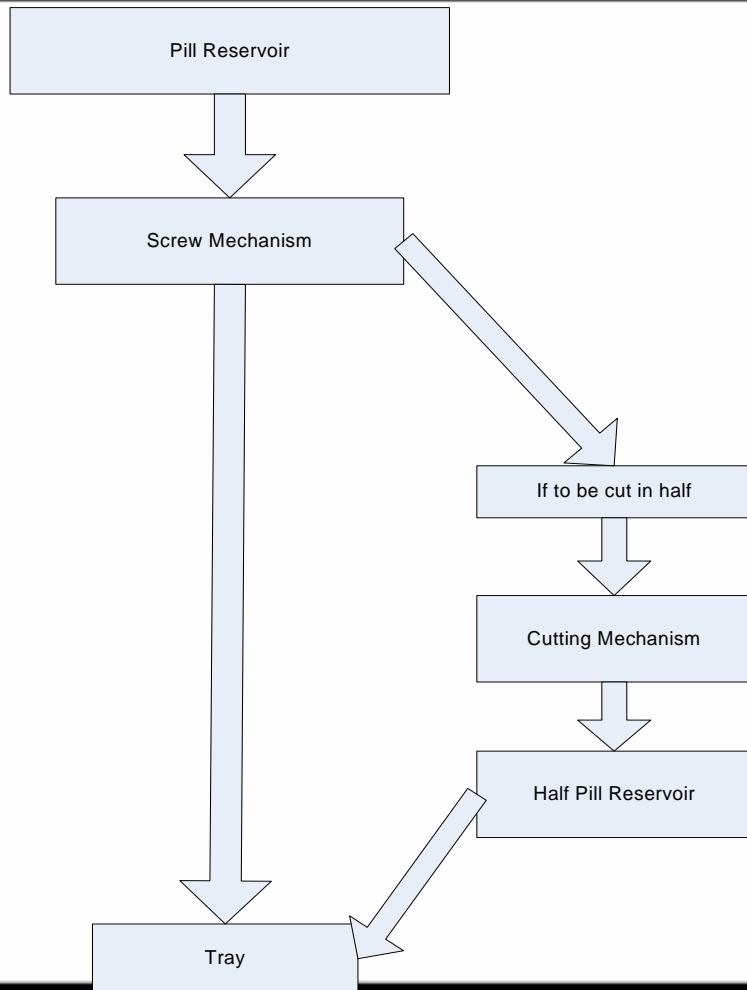


- Use of gravity to dispense pills
- Screw conveyor to move pills through device
- Button pushed to start mechanism and dispense pills once alarm goes off



Side View of
Screw
Conveyor
Mechanism

Movement of Pills



- Two pill reservoirs: Whole pills and Half pills
- Travels through screw conveyor to cutting mechanism
- Dispensing tray

Offsite Alert

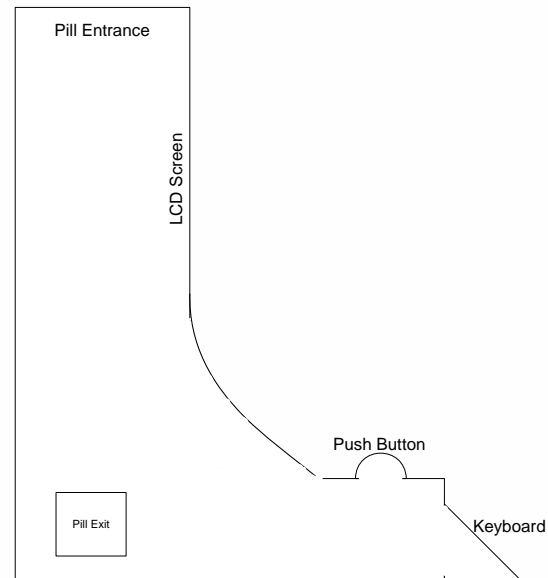
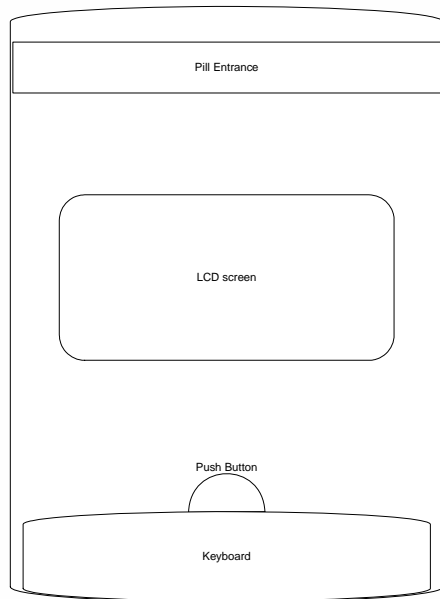


- Bluetooth wireless technology
- Sends signal to computer with internet connection
- Text message sent to caretaker's cell phone
- Offsite alert activated if pill not taken within half hour of scheduled time

Physical Properties



- Maximum 2x2x2 feet
- Maximum 10 pounds
- Plastic casing
- Inert materials
- Waterproof
- Durable



Budget



| Part | Price |
|-----------------------|-------------------|
| Keypad | \$27.00 |
| LCD Screen | \$25.48 |
| Bluetooth Kit | \$339 |
| Detachable power cord | \$4.55 |
| AC receptacle | \$1.00 |
| Motor | \$32.46 |
| Speakers | \$30.00 |
| Pushbutton | \$20.00 |
| Microprocessor | \$2.00 |
| Cooling Fan | \$16.88 |
| Enclosure | \$161.60 |
| Text-to-speech module | \$116.00 |
| Blade | \$1.20 |
| Screw Conveyor | \$80.00 |
| PCB Board | \$200.00 |
| Total Cost | \$1,057.17 |

Conclusion



- Revolutionizes medication dispenser market
- Eases the process of taking medication
- Keeps users healthy



Questions?
Concerns?
Comments?