# Medicine Dispenser

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## Introduction

The idea for this project came from the difficulty of seniors to maintain their medicines correctly and in schedule. Medicine dispenser allows user to set certain medicines to be dispensed at any given time.



*FIGURE 1. Design*

## Objectives

During this short period, the aim was to create a prototype of a product with basic functionalities: clock, alarm, dispensing. The purpose was to make one tablet dosed, e.g. every hour, and after that would works, the product should allow the user to schedule the tablet dosing and decide how many tablets would be delivered from each container.

## Methods

The Arduino Uno R3 microcontroller was used for this project for its familiarity. The dispensing mechanism Tower Pro SG92R - servos and styrox as building material for their easy use. The Arduino Robot TFT 1,77" screen and six buttons are used to operate the machine.

MsTimer2 is used to make a clock function. Every five seconds it generates an interrupt where the seconds, minutes and hours are increased accordingly. The function also checks if the alarm is triggered.
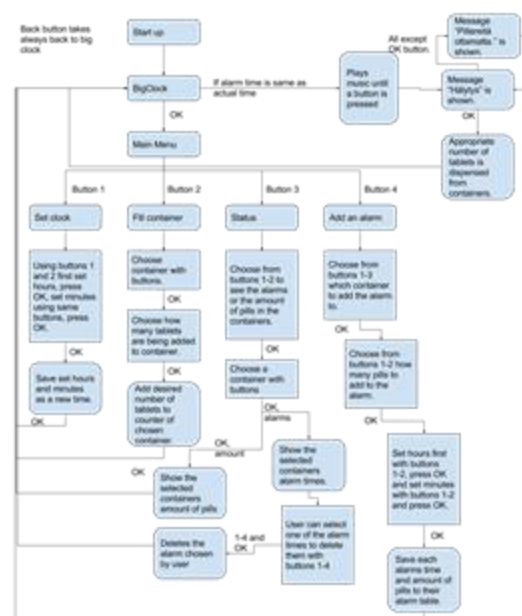


*FIGURE 2. Flowchart*

Multidimensional arrays are used to store the time and tablet amount for alarms, one for each container. When the alarm is triggered another multidimensional array is used to store information on how many pills would be taken and from which container.

## Results

The device works most of the time. The device suffers from graphical glitches and occasional crashes due to an interaction between MsTimer2 interrupts and text draw functions of the screen. The best solution so far is making interrupts happen less often.



*FIGURE 3. Wiring*

## Conclusions

The pills currently used in the dispenser need to be of same size. Further development would allow the use of different pills.

## References

Arduino TFT screen:
https://www.arduino.cc/en/Guide/TFT