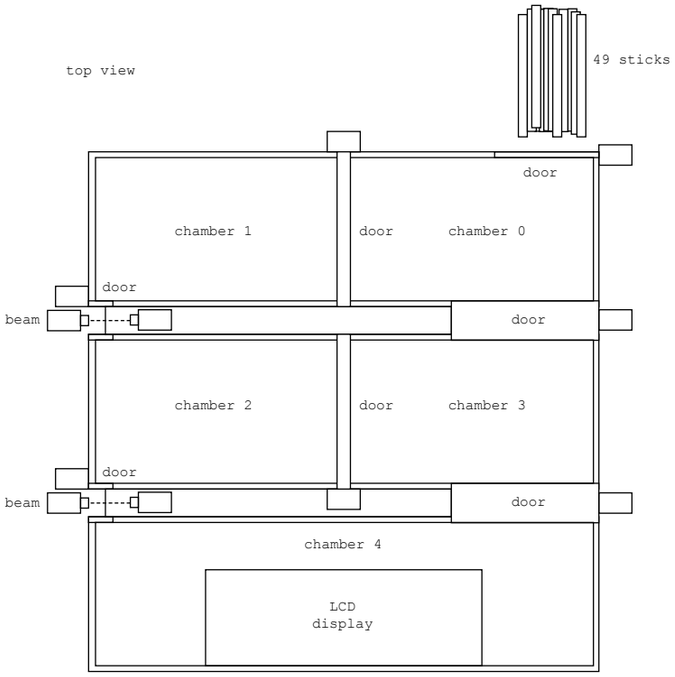
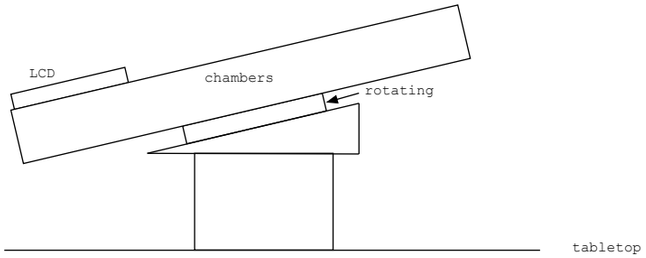
I-Ching Divination Machine

A tentative HTMAA final project proposal by Lingdong Huang

top view

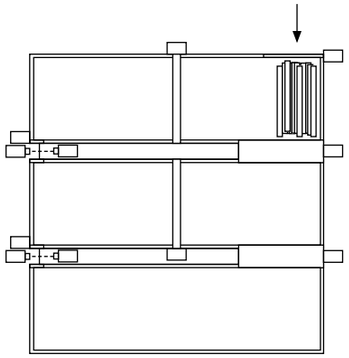


side view

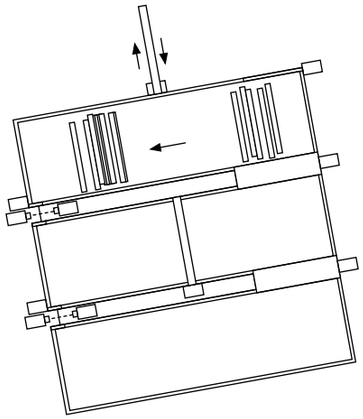


The divination algorithm described in I-Ching involves randomly dividing a bunch of sticks and doing modular arithmetic with the counts. The resultant number is then interpreted acoording to the book for "fortune telling". A rough explanation of the algorithm on Wikipedia: (https://en.wikipedia.org/wiki/I_Ching_divination#Yarrow_stalks)
This design puts a flat box, divided into chambers, on a slanted and rotating stand. Using gravity, the sticks can fall into different chambers (connected by trapdoors), performing the required steps for the divination technique. Laser beams are used to count the sticks when they're going through certain doors.

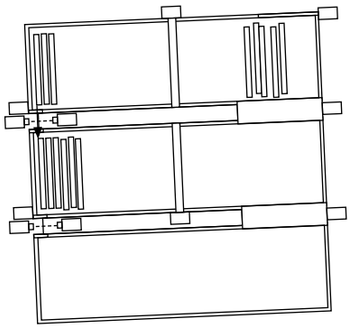
Initially, the sticks are placed in chamber 0.



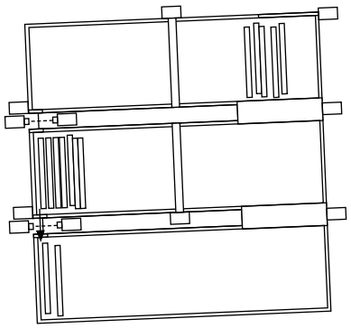
Opening and closing this door, a random number of sticks are allowed to slide to chamber 1.



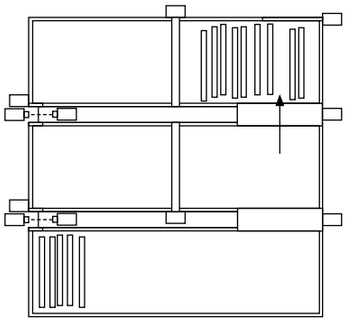
The sticks falls to chamber 2, while being counted.



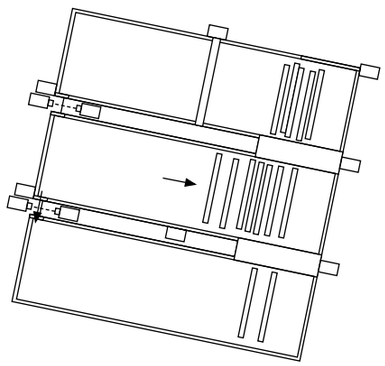
(count+3%4)+1 number of sticks are allowed to slide to chamber 4, enforced by the second beam counter.



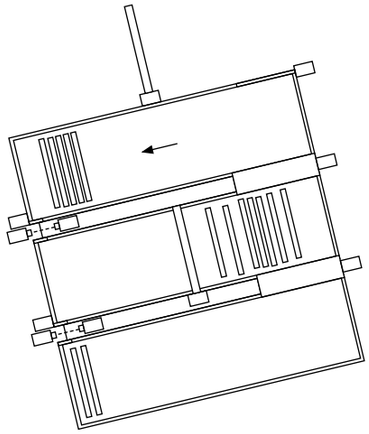
The sticks in chamber 3 fall back to chamber 0. The process restarts. This loop continues until there are 6 or 7 or 8 or 9 sticks remaining in chamber 0. This number is one of the 6 numbers required for the final interpretation. The intermediate and final results are displayed on the LCD screen. At the very end, the "fortune-telling" message is also displayed.



The remaining sticks in chamber 2 slide to chamber 3



The sticks remaining in chamber 0 are slid to chamber 1



This group of sticks follow the same steps: the remainder to the modulo falls to chamber 4, while the rest joins the previous group in chamber 3.