Rube Goldberg Machine
*A complicated and useless (?) object*

A Rube Goldberg machine is a deliberately over-engineered machine that performs a very simple task in a very complex fashion, usually including a chain reaction. The machine is named after American cartoonist and inventor Rube Goldberg.

The objective of the GC is to build a Rudy Goldberg machine whose final result (should end) in the **popping of a balloon**.

Please find a detailed breakdown of rules below.
Rules:

- The machine must complete the task as described in the challenge. If not, points kept for the same would be deducted.
- The setup should have a **minimum** of 5 steps (energy transfers). Identical transfers of energy in succession should be considered one step. For e.g., a set of dominos falling into each other should be considered one step. Stating such instances as multiple steps will not be considered.
- Should employ **at least 2 simple machines** (Hereon, simple machines refer to Wedge, Pulley, Wheel & Axle, Inclined Plane, Lever, Screws and others).
- There is a maximum run time of 3 minutes.
- The setup should have dimensions no more than 10’ *10’ * 8’ (inches).
- Maximum of 1 team member can participate in the working of the machine. A person may start the machine. A person may be in the machine. If they make physical contact with anything in order to effect a transfer of energy, that will be scored as an intervention and lower the scoring for the machine. Only in the case of a re-run (which is subject to approval from the judges and MnP team), more than 1 member can enter the arena of the machine.
- Each team has to submit a report of their machine giving a proper flowchart of all the blocks/broad-parts used. This should clearly outline the number of steps in each block. Teams are encouraged to submit a video of a working demo along with the written copy of the description. This would act as a fail-safe. The final report will be evaluated by the MnP Team and will be referred by judged during the demonstration.
- Programmable Logic Controllers or any other electronic controller/devices may be used on the machines. They are not to be remotely controlled. The use of these devices must be in line with a step. Using these devices as a fail-safe for the machine is illegal and grounds for disqualification.
  - For clarity, we present an example. Let’s say a ball is supposed to fall onto a switch and turn on a motor which is run by the controller.
    - If the ball misses the switch, but the controller still starts the motor, the controller is not transferring energy from one step to the next step. It is acting as failsafe so the machine can finish and not in line with the definition of a step
    - If the ball hits the switch and the controller starts the motor as it should, the device is merely transferring the energy from one step to another, so this is line with the definition of a step.
- If a controller/electronic device is used, each instance of its operation should be clearly stated in the step-by-step description submitted along with the written description.
  - Each instance should be considered one step, but please supply detailed information of how the step is being accomplished.
- No hazardous materials or live animals to be used.
The above rules have been inspired by other famous Rube Goldberg competitions such as RGMC and Takneek IIT Kanpur.