

# **Group 1**

**SLAVE**

# Members

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# Target User

**Slave** - The indigenous people from Africa and America. They have a huge effect on the discovery era, since they were a “Cheap labour”, they were being used by the Europeans to colonise the New World.

## Problem & Why we chose it

- Oppression of Slaves & See Slaves as tools / things.
- Some Slaves want sugar in order to maintain their working spirits
- Want Physiological Needs and Security
- Want Freedom
- Slave were forced to work too hard.

We chose it because it was a big problem to slave around the world. Slaves were treated inhumanly. In our view, that is not normal. Some of these problems, we can't solve it. Like “want the freedom” problem, according to the history, these problem were solved by using law and force. In the end, we chose “Slave work too hard” problem.

# Problem Analysis

- Slave's master assigned a hard works to Slave because there is no technology to help their work. They chose quantity over quality.
- What do slaves do? Farming, Hunting, Brewing, Wood cutting, and Sexual Activities.

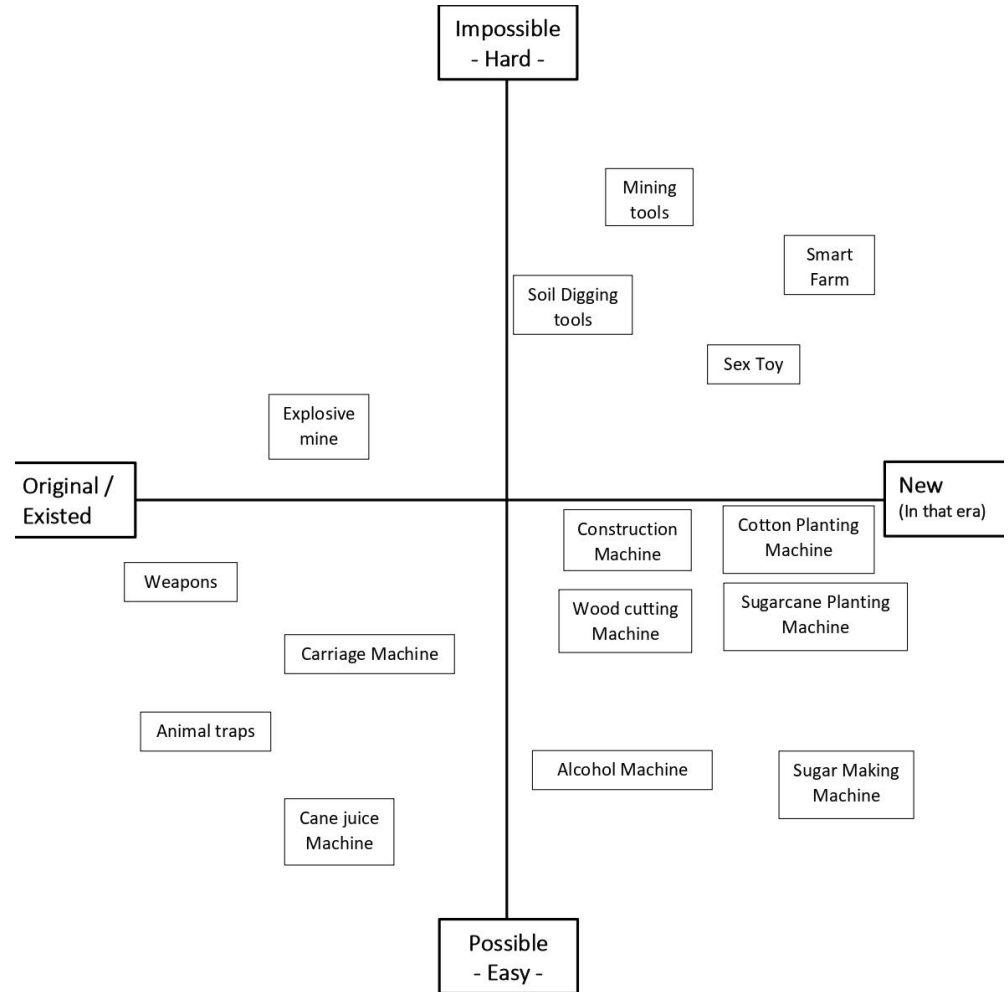
# Root Causes

We thought that, because there is no technology to helping human, they will use slave. So, If we can build some technology to help them, they can work more easily. This will help the “Slave work too hard” problem that we chose.

# Solution Generation

By inventing some technology that help slaves to do their works. By searching what field the slave do, we can figure it out some of them and put it on the graph.

We picked the Sugar Making Machine due to the important of sugar - sugar can be used in alcohol production and sugar is one of the most important economic product exported from North America in 1700s. If we can build this machine, more than half of enslaved Africans can work more easily.



# Name of the Machine : “Call me Sugar Daddy”

## Specification

### 1. Function

- a. Can make edible “Raw Sugar” from sugarcane as the minimum requirement.
- b. By using a very high torque motor to juice the sugarcane and a high torque motor to move the rack that is connected to the beam to spread out the cane juice.

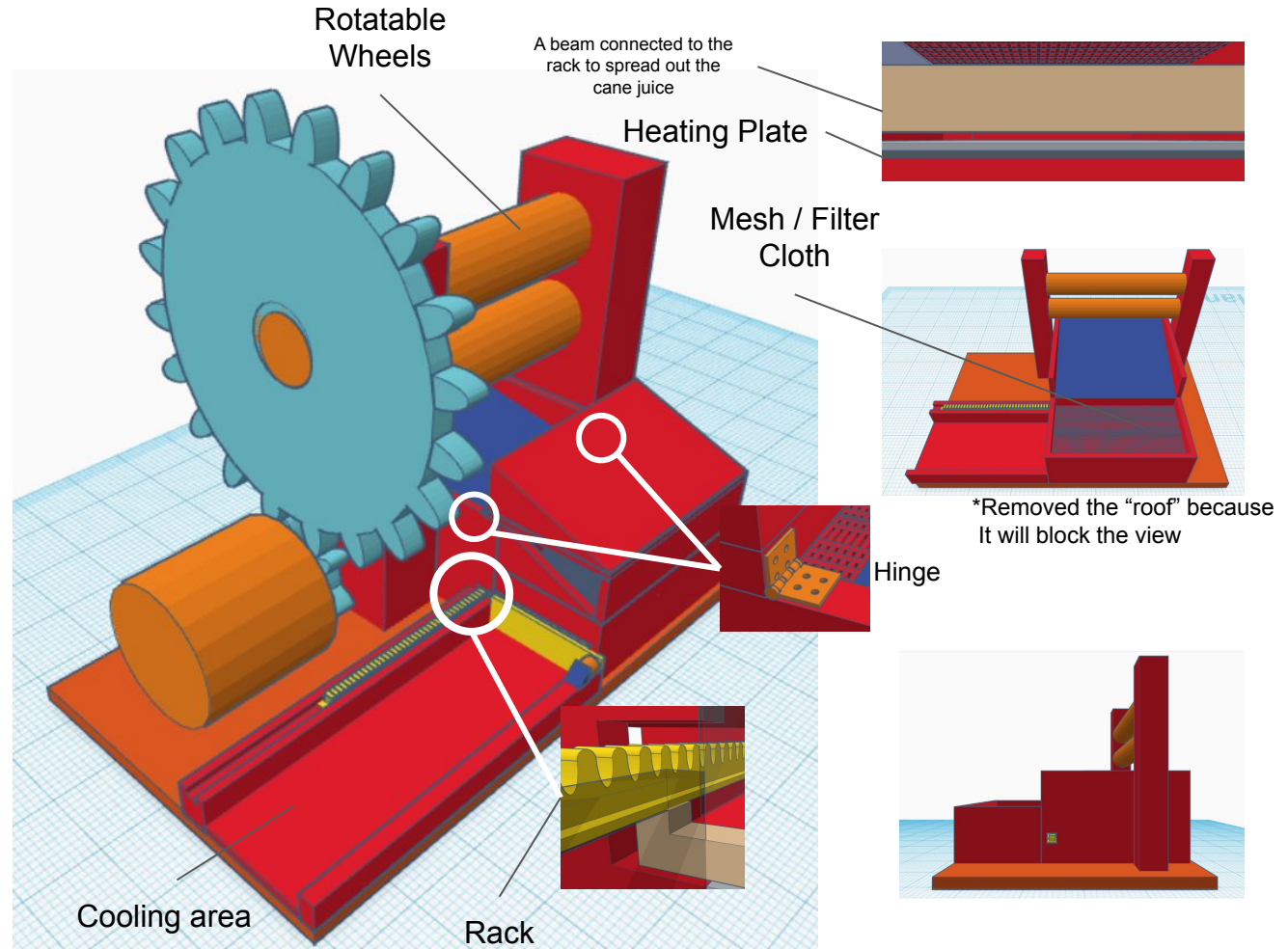
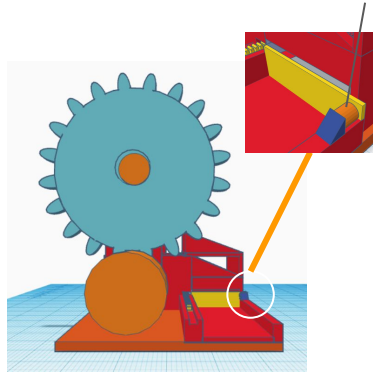
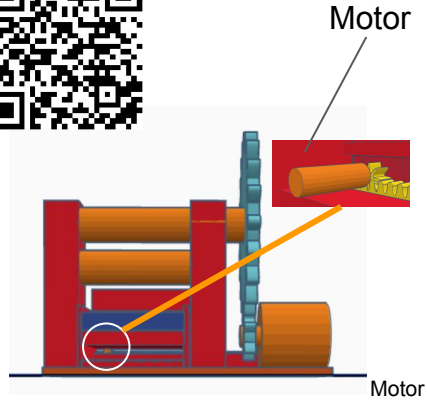
### 2. Limitations

- a. Only make raw sugar from sugarcane or cane juice.
- b. Not portable, and need an area to place the machine.
- c. Not suitable to place the machine on a steep slope.
- d. Can't contain a large amount of sugarcane juice.
- e. Might need human as the supervisor. Hence, Might not be fully automatic.

### 3. Parts

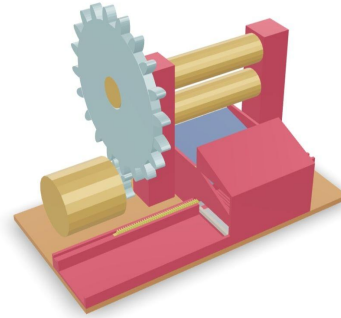
- a. Motors ( $\geq 10$  Nm. torque) and 2 motor with high torque.
- b. Heating element (sheet)
- c. Temperature sensor, Sucrose Sensor
- d. Metal Sheets (Non-stick surface)
- e. Big and small gears.
- f. Walls, Floor, Structures, etc.


# Sketch

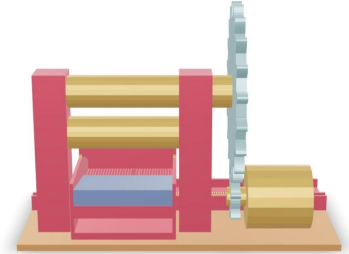




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 View in your space



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