# Ideation Documentation

**Generate Ideas (3.1)**
Daniel and I individually came up with ideas so that we can talk about both of our ideas during the next class meet. Some of the ideas I came up with were extreme, and some were possible, while others difficult to create. Some ideas I left slightly vague so that we can further discuss how we should approach those topics. With ideas such as caffeinated air and coffee machine, I tried to consider how realistic and feasible they were and kept my ideas creative, yet not too far from reality.

Individual idea lists are below

Shaun:
I am thinking that some combination of the ideas below would achieve the goal

1. Affordable sleep monitoring system
2. Curtain that rolls up based on an alarm
3. Humid vapor blown straight at the face (to safely simulate breathing difficulty)
4. Fly/Mosquito sound generator (maybe an app? Or even just a ringtone)
5. Vape-able caffeinated air blown at the face through a controlled release 15min prior to alarm set off through microdoses of 1mg, the maximum total amount released to be less than 60mg, considering delivery efficiency and changes in heart rate to assess the delivery)
6. Air conditioner remote that makes the room extremely cold at a set time
7. Coffee machine alarm. The only way to turn it off is to manually grind a certain amount of beans (probably measured by weight) and then manually pull a full cup of espresso to shut the alarm off.
8. Bed sheets that disappear in the morning.
9. Bullet ant
10. Intense light
11. Socks that you sleep with that shock you out of bed in the morning

Daniel:
Waking Ideas:

- Improvement on the alarm clock
    - Alarm clock with multiple other function or restrictions
- Stimulus on human body
    - Products that use vibration to wake people up (head, hand, or whole body)
    - Shock…. (on the body parts that won't be able to harm them, such as butt)
    - Stimulus on human brain
        - Caffeine, tea, gums

        - Hormone
    - Temperature
        - A bed or a room that can provide a extreme temperature (hot or cold) to wake people up
    - Light
        - Sunlight (ways to get sunlight into the room at a certain period of time)
        - Light up the room at the time that they should wake up
- Other indirect methods
    - Wake people up at the correct moment in their life cycle

Getting out of bed Ideas:

- Modification if bed
    - Moving (rotating) the bed into 90 degree (or > 50 degree) so that people on the bed can physically "get out" of bed
    - A bed that is designed for individuals pushes the user up vertically (15cm high) to the air

**Refine Ideas (3.2)**

Daniel and I first looked at each other's idea list and asked questions for clarification on certain ideas so that we can fully understand what the idea is about. Daniel questioned me on the feasibility of blowing humid substances at someone's face as that would also cause the pillow and sheets to become wet, so I eliminated all ideas related to vapor. On Mr.Manning's suggestion, we both eliminated all options that cause some form of pain to the user.

We ended up with only bed-modification, light stimulus, and caffeine related ideas. Since you can't make a sleeping person ingest caffeine, and because light stimulus related products are already widely available on the market, we decided to use Daniel's bed modification idea: to lift the bed up and drop it to wake the user up.

**Develop a Plan of Action (3.3)**

Since our selected topic leans on the extreme side of things, I decided that the first thing we need to do is to find out exactly how much time, money, and effort it will take for us to complete the project. This is uniquely an issue specific to our project, since we are the only group making a physical product, BS-ing about progress is difficult.

My plan to test if the bed idea would work for us is as follows:

1. Create a virtual circuit plan
2. Create a list of components from the circuit plan
3. Search online for the prices of those components
4. Calculate approximate time effort required
5. Consider external factors (such as school moving)

If we determine the project to be doable, the to-do list would be as follows:

1. Obtain all necessary components (as well as a couple spares for vitals)
2. Finalize circuit plan
3. Design physical concepts (gears, pistons, levers, the bed itself, etc.)
4. Design rough program plan (flow chart)
5. Build physical structure
6. Install electronics
7. Write and install the program
8. User testing & feedback
9. Appropriate modifications
10. Presentation

**Reflection**

1. Describe. What happened?
    a. Daniel and I generated ideas individually, and then we looked at each other's ideas to see what each other were thinking. We tried to look for unique ideas and ways to combine them if possible. In the end, we had a list with a few ideas that we picked out from each list that we were both interested in making (including not necessarily do-able ones).
2. Think and Feel. What were you thinking and feeling?
    a. We both instantly felt like the dropping bed idea would be interesting and fun to make so we decided that we would make it. I knew it wouldn't be possible given our time limitations and our school moving is also an issue.
3. Evaluate. What was good and bad about the experience? Why?
    a. We thought it would be fun to attempt to make a bed that moved up and down to wake people up but it was technically difficult to finish within the given time limit and with our resources. Mr.Manning also noted the possibility of someone injuring their neck while the bed drops, which I thought was a valid point; not just the neck breaking but possibly other jointed body parts such as limbs can get injured too.
4. Envision. What else could you have done?
    a. Instead of just jumping onto a topic purely because it was interesting, we should've evaluated clearly if its possible to make or not. We could also combine ideas if we talked more about it.
5. Plan. What would you do different next time?
    a. Next time I would evaluate how realistic and possible a project is before jumping straight into it. I would also have at least one more idea readily agreed on so that we could work on a fallback option.