Green Based Dream

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Problem

In the last 20 years, the textile industry has been able to increase its production by as much as 400 percent. However, it also becomes more than apparent that the whole industry has its problems, many of which can and should be solved by following the sustainable development goals outlined by the UN.

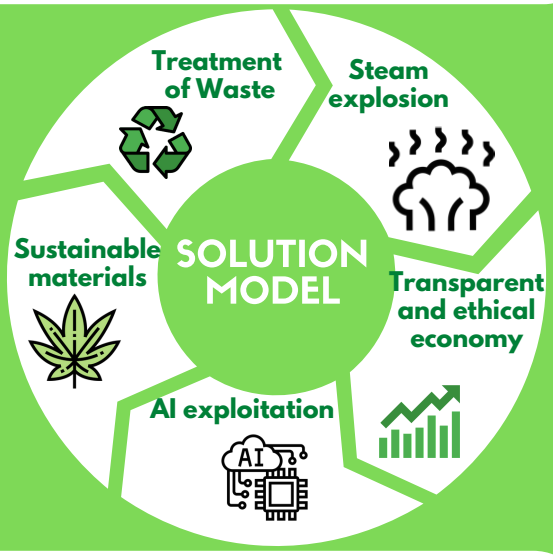
Aim

Our team aims to introduce a new, sustainable approach to textile production by addressing the aspects:

1. Sustainable materials
2. Proper waste management
3. Productive efficiency

Hypothesis

We believe that the best way to address the problem of unsustainable textiles production would be to introduce a new circular model that would include a novel business model, innovative recycling and processing structure.



Our solution compromises of sustainable textile production and includes these aspects:

Sustainable materials: We believe the optimum material would be hemp for textiles production because of the lower water usage, fast, pesticide-free growth, easy dyeing, and strong and durable fabric.

Treatment of waste: Neu Pulp recycling: our suggested recycling way is by dissolving natural fabric fibers into a new biodegradable raw material called Neu Pulp. The clothes are shredded, de-buttoned, de-zipped, de-colored, and turned into a slurry. Contaminants like plastic polyester are taken out. What remains is cellulose – the biodegradable organic polymer that cotton, trees, and all green plants on earth are made out of. Then it is dried in order to produce pure sheets of Circulose. The sheets are packaged into bales and shipped to be made back into textile fibers.

AI exploitation:

- Soil: devices like fertility meter and pH meter are set up on the field to determine the fertility of the soil by detecting the percentage of the primary ingredients of the soil like potassium, phosphorus, nitrogen. Automatic plant irrigators are planted on the field through wireless technology for drip irrigation. This method ensures the fertility of the soil and the effective use of water resources.
- Analyzing crop health by drones: SkySqurrel Technologies has brought drone-based Aerial imaging solutions for monitoring crop health. In this technique, the drone captures data from fields and then data is transferred via a USB drive from the drone to a computer and analyzed by experts.

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Steam explosion: Steam explosion is used as a hydrolytic pre-treatment technique that releases the constitutive components of biomass, thereby increasing the enzyme and solvent accessibility of cellulose, it also reduces the need for labor for hemp production. Steam explosion proved to be one of the most promising techniques, reaching solid biomass yields of 97%, due to its simplicity in machinery and efficiency in resource and energy use in the creation of high-value products. This method requires water (steam) and natural gas resources. From the research, we observed that it is possible to have a surplus of these materials because of recycling in centers, thus providing a perfect opportunity for the production of hemp fabric.