

Final Paper - ModesTech

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### Abstract

Our brand ModesTech's aim is to create smart hijabs/ scarves. Our products will be made with the idea of making life easier for women who will be purchasing our products. We will also be a fair-trading company and make sure our products are made by women in healthy environments. The goal is to make modest apparel for women who will indirectly help the less fortunate women in the world by purchasing our products, hence creating more job and welfare opportunities for the women particularly in countries like Bangladesh, India, Pakistan and Trinidad. The big idea is to make an all-purpose hijab, which is made up of a breathable fabric. In addition, we can adjust temperature on hot or cold days as we have noticed this is a struggle for most Hijabis that are Muslim women, one of the kinds of women in our target market. We believe that this will be a very cool invention! Also, have noticed that most Muslim women struggle with the length of their hijab as sometimes it's not long enough to cover up fully so we will have a Velcro added extra half a meter fabric, so the wearers can adjust how much drape they want or in other words be able to change the length of the hijab / scarf. Lastly, we will make sure to give our users the ability to change the color and pattern of their hijab through a pattern and color changing feature / settings in our smartphone application. All the wearer will have to do is to open our application and go to settings and select their desired colors and patterns! See Fig 1 to understand what our smart hijab will look like!

*Keywords:* hijab, modesty, smart textile, sustainability, fair trade.

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### Fabrics

For our fabrics we will be using fabrics made by the company named Orange Fiber as it is an Italian sustainable fabric producing company and our aim is to use sustainable fabrics for our hijabs. The company basically makes sustainable fabrics from orange peels and it is the innovation, elegance and the exquisite quality of their fabric which makes them a perfect fit for our brand as we are looking for except quality! Fig. 2 explains how our fabrics for hijabs will be made sustainably by the company of Orange Fiber. The materials that we will use will be cotton jersey fabric made by Orange Fiber for making our hijabs as one of the features of our hijab is stretch ability, and cotton jersey is a fabric known for its stretch properties, and also because it drapes perfectly for a hijab and it is the drape in hijab that adds beauty to it! Cotton jersey is also a perfect choice if fabric as it is not going to slip off the head like silk and chiffon fabrics. Fig. 3 is a cotton jersey fabric swatch made by Orange Fiber. We are using a stretchable fabric but also we will keep our hijabs half meter extra-long and that extra part will be tucked with a Velcro so that if someone wants to extend the length of their hijab, they can simply open up that Velcro and be able to add that extra half a meter length.

### Technology

The technology that we want to incorporate in our hijabs is inspired by two revolutionary smart textile technologies. First, is the Google Jacquard, and how it uses a chip in its clothing that is connected to the Android app, and how the users can do various things through that Jacquard app. So, we will be collaborating with Google Jacquard as just like us, they say that

"their ambition is simple to make life easier", and so we will slide in those Jacquard chips in the corner of our hijabs. (See Fig. 4)

Second, the idea of being able to change colors and patterns and it is inspired by the mind-blowing smart textile technology known as CREOL's Chromorphous Technology. CREOL is a College of Optics and Photonics at the University of Central Florida (UCF, which has successfully developed the "first - ever, active user - controlled, color changing fabric" - which allows which will allow our ModesTech hijab wearers to not just change the color of the fabric, but also will allow them to change or add patterns to it! Fig. 5 is an example of their exceptional creation that inspired us, it is a purple color and patterns changing tote bag. We love that this is so much more than just a color changing technology, as with the ability to change patterns as well, we can basically change the whole game of the hijab industry! Besides changing color and adding patterns like stripes, this smart textile technology also changes the temperature of its thread - which is one of the features we wanted our smart hijab to have! The mechanism of this technology can be explained as "each thread woven into the fabric incorporates within it a thin metal micro - wire. An electric current flows through the micro - wires, thus slightly raising the threads temperature. This is great for cold winter days as it will keep our smart hijab wearers warm! Other than this, "special pigments are embedded in the thread respond to its modification of temperature by changing its color." (Wearable Technology Insights, 2018)

### ***SWOT Analysis***

Strengths: ModesTech's biggest strength is its technology integrated in its apparel. For example, our hijab is very different from the typical hijabs sold by our competitors such as Haute Hijab, Vernona Collection, Culture Hijab, and Vela Scarves. Other than that, the temperature,

colors and patterns changing, and drape extending features of our hijab are revolutionary features which no hijab company has discovered yet.

**Weaknesses:** Some weaknesses ModesTech has is that it is marketed to a specific demographic. The merchandise also is sold at a higher cost than comparable clothing companies. Another weakness can be the fact that most middle eastern women are not highly educated because of their cultural beliefs so it would be kind of tough to get them to understand the technological aspect of our products. Also, as of now we only cater to women but plan to expand our scope by including apparel options to men as well in the future.

**Opportunities:** The greatest opportunity would be to be able to cater all religious women, like if we see pretty much every religion at some point wants women to dress modestly, be it Islam, Christianity, Judaism, Hinduism, Sikhism, etc. There's also an opportunity to expand into a full apparel line and targeting tech savvy women all over the world.

**Threats:** The only threat is if this technology becomes too common, it can go obsolete. So, we will have to make sure that our product development techniques and costing are not published somewhere, it's not shady but it's just professional to keep the company's secret.

### *Cost and Demographics.*

The fact that our customer will have the color and pattern changing option, we can charge about at least \$100 per hijab as this one hijab will be equivalent to having 20 hijabs as we will give 10 color choices and 10 pattern choices! So if we do the math it is very cheap as our customers will get 20 hijabs in 1 hijab which means it will cost them only \$5 for each color or pattern and that is super cheap as a normal hijab itself costs no less than \$20 to \$25.

Our target customers are women. More specifically, women who are around the

age of 25 to 40 and are middle class or upper class. Whose income level typically ranges between \$55,000 - \$75,000 per year. Their occupation are as follows: Assistants of Business companies, housewives, models, artists, editors of fashion magazines or newspapers, Muslim fashion influencers, attorneys, interior decorators, designers, etc.

Their demographics are women who are fashionable, who look for modest fashions and who live in big cities. Their ethnicities are South Asian, African American, Middle Eastern, Native American/Alaskan Native, Latino and white. They can be classified as middle-aged women. These women are religious and hence prefer to dress up modestly.

Their level of education is that they are all college graduates, at least an associate degree, at the most a Doctorate. They are opinionated. They are interested in activities like shopping, reading books, watching movies and fitness. They are technologically driven women; they do not mind shopping online at all. At this point they buy almost everything online, except for groceries.

### **Scalability:**

If our company scales up, and we aim to spread over in Middle Eastern countries like Kuwait, Saudi Arabia, United Arab Emirates and Qatar as these countries are full of people who fit in our target market of Muslim hijab wearing and modest clothing preferring women. Also, we plan on expanding our product line into more than just accessories like hijab, we plan on starting an apparel line for both men and women in future as our idea goes viral and we get popular. We will first begin prototyping in the United States as both the Google Jacquard and CREOL's by Chromorphus technology were developed in this country so we want our ModesTech to be prototyped here in this country. But when it comes to mass production, ModesTech plans on

manufacturing its products in countries like India, Pakistan, Bangladesh and Trinidad and hence provide employment opportunities for the less fortunate women in these countries and give them a chance to work hard and be successful in life.

### ***Fair Trade:***

Like we stated earlier, the goal of our company is to make sustainable fashion with smart textiles. We want to make lives easier for women who are looking for modest options for clothing as well as we want to make lives easier for less fortunate women living in countries like Bangladesh, India, Pakistan and Trinidad. We are planning to offer 10% of our annual profits to provide relief for single mothers in these countries. Not only we will offer them relief but also, we will give them jobs and basic education and hygiene lessons so they can keep themselves and their children safe in future.

We will be following the rules of a fair-trade company. Single mothers or women with low family income will be the first priority for us to hire. We want our company not just to be known for our products but also about these dedicated strong women who will contribute in making ModesTech a success! Since we will be making our clothing in South Asia and the Caribbean it will cost us a lot cheaper than what we can get here in the United States. Other than costing, the reason why our factories will be located in these areas would be because we understand that people in every country are not as fortunate as US citizens as they don't have anything like unemployment relief programs, FAFSA, or other free basic education from their government as they have to pay for everything little thing in these countries to survive, so with our jobs we will give employment to the ones who would really care about their position and

value the importance of time and money! We will give them flexible hours to work and a decent pay based on what is the ideal wage in their country.



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Figures title:



*Figure 1.* This is a prototype of the Smart Hijab by ModesTech. Here you can see that famous Vogue model, Gigi Hadid is wearing our Smart Hijab. (Pre edited image is a courtesy of Vogue Arabia).

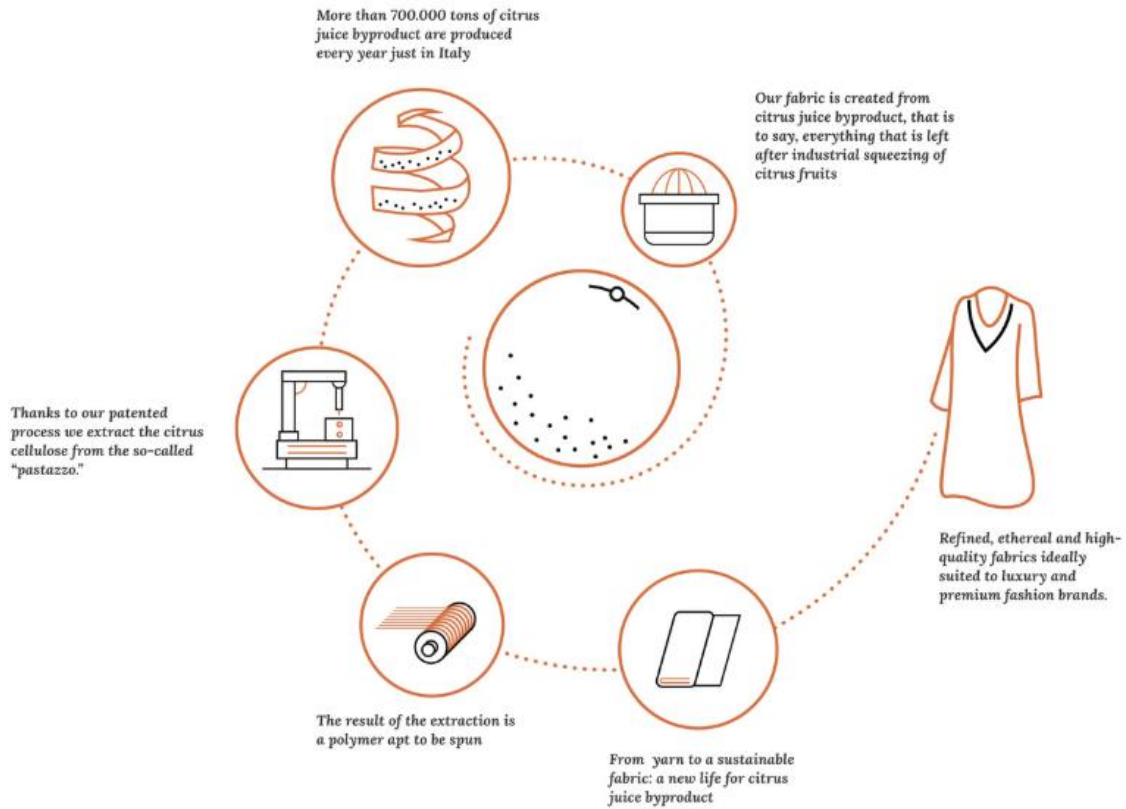


Figure 2. This is the process of making fabrics from orange peels to a finished garment by Orange Fiber - the sustainable fabric making company with whom we are going to collaborate to make our smart hijabs. (Image: courtesy of Orange Fiber)



*Figure 3.* This is a fabric swatch of the Cotton Jersey material made by Orange Fiber that we are going to use to make our ModesTech smart hijabs. (Image: courtesy of Orange Fiber).



*Figure 4.* The Google Jacquard tag / chip that is going to be interested in our smart hijabs. This tag will be in the corner (secret pocket) of the hijab and it can be removed when the wearer wished to wash their hijab. This tag will be connected to the app and from there the users can change colors, patterns and temperature of their smart hijab. (Image: courtesy of Google Jacquard).



*Figure 5.* This active user - controlled color – changing fabric tote bag by Chromorphus technology is the inspiration for the color, patten and temperature changing features of the smart hijab by ModestTech. (Image: courtesy of Wearable Technology Insights).