

Research Article

Teaching and Learning Innovation in Management of Technology and Innovation: Steam Automatic Iron Machine

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Abstract: Modern lifestyles have increased the demand for household appliances that improve efficiency, convenience, and energy management. Ironing is often considered a time-consuming and tiring domestic task, especially for working individuals with limited time for household responsibilities. Therefore, this project introduces the Steam Automatic Iron Machine, an innovative portable ironing system designed to simplify the ironing process through automated steaming technology. The machine features intelligent temperature adjustment based on fabric type, energy-saving functions, portability, and foldable travel-friendly design. In addition, the product includes safety protection features and multiple-hanger support to improve user convenience. This innovation aims to reduce household workload while promoting smarter and more efficient clothing care management.



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1. INTRODUCTION

Household ironing is commonly viewed as a repetitive and time-consuming domestic responsibility that requires considerable effort and energy. In today's fast-moving lifestyle, many individuals, particularly working adults, struggle to allocate sufficient time for household management after long working hours. Traditional irons also require manual temperature adjustments and continuous supervision, which may increase inconvenience and safety risks during usage.

To address these challenges, this project introduces the Steam Automatic Iron Machine, a modern portable ironing system designed to simplify clothing care activities. The innovation combines automated steaming technology, intelligent fabric temperature detection, portability, and energy-

saving features into a single device. Unlike conventional irons, the machine is designed with foldable and travel-friendly characteristics that improve user mobility and convenience.

The development of this product is intended to support modern consumers who seek efficient household solutions that reduce workload and improve productivity. By integrating automation and smart technology, the Steam Automatic Iron Machine aims to enhance user comfort, reduce ironing stress, and provide a safer and more practical alternative for everyday clothing management.

2. LITERATURE REVIEW

Managing household chores has become increasingly difficult for many working individuals due to demanding work schedules and limited personal time. Among daily household responsibilities, ironing clothes is often considered one of the most exhausting and inconvenient tasks because it requires continuous attention, physical effort, and time consumption. Many people return home feeling tired and stressed, making it difficult to complete domestic responsibilities efficiently.

Conventional ironing methods also create several practical challenges. Users must manually adjust heat settings according to fabric type, monitor clothing carefully to prevent burning, and spend significant time ironing multiple garments individually. In some situations, improper temperature control may damage delicate fabrics, while prolonged ironing activities contribute to higher electricity consumption and increased household expenses.

Furthermore, existing ironing equipment in the market lacks flexibility and portability for modern lifestyles. Most ironing systems are bulky, difficult to transport, and unsuitable for travel purposes. Therefore, there is a growing need for a smarter, safer, and more portable ironing solution that can simplify household activities while improving convenience, energy efficiency, and user experience.

Despite the fact that men's and women's roles have become more similar, women continue to spend more time on household and paid labour combined and have less free time than men (Sayer, 2005). This study found that working women spent more than twice as much time on daily household chores as working men, which is consistent with previous research that found women do more housework than men (Bianchi et al., 2000; Coltrane, 2000; Hochschild, 1989; Lachance-Grzela & Bouchard, 2010). It is different if working women are solely focused on paid work and do not have much time to devote to household chores, which affects their family members as well. For example, researchers find that hours spent in paid work are associated with decreased physical and mental health and decreased family functioning (Major, Klein, & Ehrhart, 2002).

According to a YouGov survey conducted in the United Kingdom in 2016, ironing is one of the most despised household chores. According to the survey results, 50% of people dislike ironing and 16% prefer to iron their clothes. From the results, it can be seen that half of the population in United Kingdom hates ironing their clothes. People are too busy to iron their clothes. According to the survey, paying others to do household chores such as ironing makes people happier and more satisfied (Belfast Telegraph, 2017). According to Debora Wheeldon, a professional ironer, people who ask someone else to do their ironing are lazy. Debora stated that this statement is false; the reality is that people are extremely busy with their long hours of work, and the only time they have left is to spend with their families. So, people who pay others to do their chores are actually spending money that is worthwhile.

In addition to the previous study, the researchers stated that ironing is one of the household chores that consume a lot of power, which can significantly increase household energy consumption, which has serious financial and environmental consequences. (Anthony et al., 2017). Ironing clothes

has an environmental impact because one person emits 190 kilograms of CO₂ equivalent in greenhouse gases each year. So, that is why there are numerous suggestions for how to iron the clothes more efficiently. For example, it has been suggested that people should try to iron their clothes in large batches or bulk. Furthermore, there are also suggestion that people should try to avoid ironing their clothes (Allwood, 2006). As a result, there are questions about the elimination of ironing and whether it is necessary to iron our clothes. According to previous research, ironing may be positively related to human behaviour, and meta-analysis revealed that 64% of people ironed for the sake of appearance in order for them to look aesthetic.

3. METHODOLOGY



Figure 1. The Current Design of Iron.

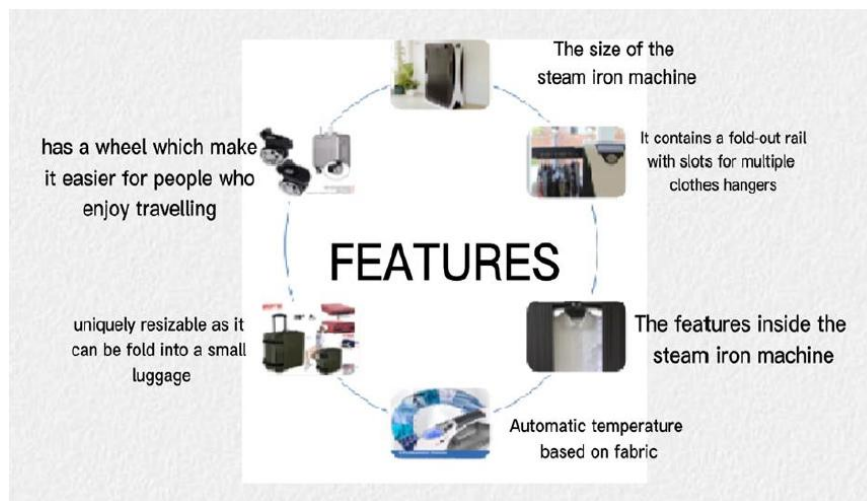


Figure 2. Features of Iron Automatic Iron Machine.

Steam Automatic Iron Machine is a home appliance that is a portable clothes ironing and drying machine, which is very easy to operate and safe to be used for teenagers because it is automatic shutdown, low voltage protection, safety, environmental protection and energy saving, suitable for all kinds of clothing. The product is an electric rotatable iron machine, suitable for most household ironing clothes, and also can be used to dry clothes. This is a portable steam automatic iron machines that can be brought to travel for people who enjoy travelling.

4. FINDINGS

The Steam Automatic Iron Machine introduces a modern and intelligent approach to traditional ironing by integrating automation, portability, and energy-saving technology into a single device. Unlike conventional irons that require continuous manual operation and temperature adjustment, this invention automatically detects fabric types and adjusts the ironing temperature accordingly. This smart sensing technology reduces the risk of fabric damage while improving user convenience and safety. The innovation transforms ironing from a tiring household chore into a more efficient and automated process.

Another unique feature of this product is its travel-friendly and foldable design. Existing ironing machines in the market are generally bulky and difficult to transport, limiting their practicality for travelers and mobile users. The Steam Automatic Iron Machine is designed similarly to compact luggage with wheels, allowing users to easily carry and store the device. This portability innovation differentiates the product from traditional steam irons and increases its practicality for modern lifestyles, especially for working professionals and frequent travellers.

Furthermore, the machine combines multiple advanced features such as battery-powered operation, automatic shutdown protection, fold-out rails for multiple hangers, and low-voltage safety systems. The ability to iron multiple clothes automatically in sequence improves productivity and reduces manual effort. This innovation not only focuses on functionality but also addresses environmental concerns by promoting energy efficiency and reduced electricity consumption. Therefore, the Steam Automatic Iron Machine demonstrates a unique combination of smart technology, convenience, safety, and sustainability.

5. DISCUSSION

5.1. *Benefits to Mankind*

The Steam Automatic Iron Machine provides substantial benefits to consumers by reducing the physical effort, stress, and time associated with ironing clothes. Many working individuals, especially working women and busy parents, often struggle to balance work responsibilities with household chores. This invention allows users to automate the ironing process by simply hanging clothes on the rail system, enabling them to complete other tasks simultaneously. As a result, the machine improves daily productivity and supports better work-life balance.

In addition, the product promotes safety and accessibility for users of different age groups. Traditional irons can pose risks such as burns, overheating, and electrical hazards, particularly for teenagers and elderly users. The Steam Automatic Iron Machine addresses these issues through automatic shutdown systems, low-voltage protection, and intelligent temperature control based on fabric type. These safety features make the machine more user-friendly and reduce the likelihood of accidents during operation.

The innovation also contributes positively to environmental sustainability and energy conservation. Conventional ironing consumes significant electrical energy and contributes to carbon emissions through prolonged electricity usage. By integrating battery-saving technology and automatic temperature regulation, the machine reduces unnecessary power consumption and improves energy efficiency. Furthermore, the product encourages smarter household management and supports sustainable living practices by minimizing time wastage, reducing stress, and improving overall quality of life.

5.2. Potential of Commercialization

The Steam Automatic Iron Machine has strong commercialization potential due to increasing demand for smart household appliances that save time and improve convenience. Modern consumers, especially urban households and working professionals, are actively seeking automated home solutions that simplify daily routines. This invention directly addresses common consumer pain points related to ironing, making it highly attractive within the growing smart-home appliance market.

From a marketing perspective, the product can be commercialized through e-commerce platforms, home appliance retailers, lifestyle exhibitions, and social media advertising campaigns. Demonstration videos highlighting the automatic ironing process, portability, and safety features can effectively attract customer attention and increase market acceptance. The machine may also appeal to hotels, laundries, homestays, and travel industries that require efficient garment management solutions. Strategic partnerships with appliance distributors and smart-home companies can further expand market reach and brand visibility.

In the future, the product has potential for technological upgrades and international market expansion. Additional features such as smartphone application control, wireless charging technology, AI-based fabric recognition, and voice-command integration can further enhance competitiveness and customer experience. With increasing global interest in automation, energy-efficient appliances, and user-friendly technology, the Steam Automatic Iron Machine demonstrates strong long-term business viability and potential for successful commercialization both locally and internationally.

6. CONCLUSION

In conclusion, the Steam Automatic Iron Machine presents an innovative solution for improving household ironing activities through automation, portability, and energy-efficient technology. The invention helps users reduce the time, effort, and stress associated with conventional ironing methods while offering greater convenience and safety. Its intelligent temperature control, foldable structure, and travel-friendly features make the product suitable for modern lifestyles, especially for busy individuals and families.

Furthermore, the innovation demonstrates strong potential to support smarter household management and sustainable living practices through reduced energy consumption and improved operational efficiency. The product not only enhances user comfort but also reflects the growing demand for smart-home appliances that simplify daily routines. With continuous technological improvement and effective commercialization strategies, the Steam Automatic Iron Machine has the potential to become a valuable and competitive innovation in the household appliance industry.

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