

## Utilizing smart chips in fashion design and Accessories for Alzheimer's patients

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**Abstract:** Alzheimer's disease is one of the most common diseases that afflict Elderly people, preventing them from Living their daily life and activities in a normal manner, where they mental abilities decline despite, all the research currently underway and the scientific progress we are living in, but no one has discovered the main cause of this disease yet. By observing the brain cells responsible for preserving and retrieving information, it was found that at some point a group of starchy proteins began to be gathering inside the cells, preventing the flow of neurons between cells, thus significantly reducing human mental responses. As declines the mental capacity of the Alzheimer's patient, they cannot remember details of their personal history, such as place of study, phone numbers, and personal address, and they may not be able to perceive current day, month, or year. This may cause loss. Because of the World Health Organization's 2015 statistics, which account for 47.5 million people with Alzheimer's disease, 7.7 million new cases of the disease are reported each year and are expected to reach 100 million people by 2050. Because of the high rate of Alzheimer's disease, Society to contribute to solving the problem of loss of these patients, according to the report of the World Health Organization. Therefore, the researcher believes that the use of smart chips in clothing designs and artistic supplements for Alzheimer's patients with the development of methods of application and different techniques of specialization to help their families in tracking them and protect them from loss.

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**Keywords:** Smart chips; Design; Clothes; Accessories; Alzheimer.

### 1. Introduction:

The world has moved to a vast horizon of science and knowledge that has changed history. This era has become known as the era of science and knowledge, and this knowledge has generated many positive changes in the world and in humanity in general. Everyday life, provided a lot of comfort and prosperity to them.

Smart chips, which make up the electronic devices, have contributed in many fields, especially medical ones, to help the medical staff and help the doctor to achieve the optimal diagnosis in the presence of the necessary electronic devices in each clinic. These electronic devices have become a major part of surgical operations, In the operating room and beyond.

Therefore, the researcher believes that the use of smart chips in clothing designs and accessories for Alzheimer's patients with the development of methods of application and different techniques of specialization to help their families in tracking them and protect them from loss and identifying the role of smart chips in tracking Alzheimer's patients, insert smart chips in clothing designs and accessories using different techniques and different materials to meet the requirements of Alzheimer's patients.

### 2. Material and Methods:

The study was conducted in 2017-1438 AH, and contains preliminary questionnaire for patients to choose their preferred materials, Estimation scale and a questionnaire for Judges to arbitrate the proposed designs.

This research followed the analytical descriptive approach in addition to the applied study Including the study of smart chips and their various uses and employment in the design of clothing and accessories.

The researcher attempted to determinate how to utilize smart chips in tracking Alzheimer's patients and What's the suitable materials for implementation of the designs and figure out the possibility to develop Clothes design and accessories using smart chips for Alzheimer's patients.




### 3. Results




The researcher used programmed satellite tracking device contains a smart chip, and this device enables you to know the location of the patient via a message via the "GSM" system and you can directly access the map to see the patient's location within a minute of the message that the device will send to you at any time you want, also you can use voice surveillance and listen to what is going on around the patient's voices. The use is easy and simple and does not require any professional, just make a normal call



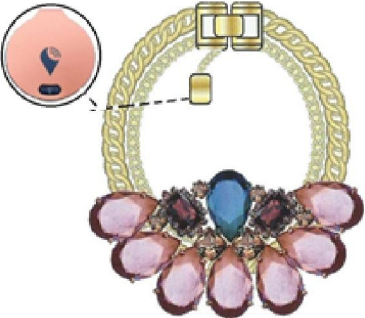

from your mobile and all information will arrive on the body of a message.

Two types of fabric were chosen, one of which is 100% cotton, the other is mixed with cotton / polyester, 35: 65%.

10 garment designs and Accessories designs were proposed using Illustrator program, with a description of the proposed design and the proposed technology and the integration of smart chips.

	Proposed Design	Description and integration of smart chips
1-		<p><b>Description:</b> Saudi men's dress with a front extension, a wristband, a high collar and a pocket at the chest line</p> <p><b>Materials:</b> Blended fabric for the implementation of this design cotton/ viscose, and the best texture structural composition is plain texture 1/1 and treated against bacteria</p> <p><b>Integrating device in design:</b> Cut an additional layer of the bracelet to serve as a small pocket to install the trace device to be easy to remove by their parents when washing dress.</p>
2-		<p><b>Description:</b> Men's shirt with a frontal extension closed with a capsule, easy-to-wear and remove, a simple shirt collar and front cut, and side pocket</p> <p><b>Materials:</b> Blended fabric cotton / viscose mixture, and the best texture structural composition is the texture plain 1/1 and treated against bacteria</p> <p><b>Integrating device in design:</b> Cuts an additional layer for pocket cover that secures the tracing device between the pocket cover and the additional layer</p>
3-		<p><b>Description:</b> Men's winter coat with a simple collar with a front extension that closes with a capsule to make it easier to wear and remove</p> <p><b>Materials:</b> Non-woven fabric was used to provide warmth and have a cotton liner plain 1/1 treated against bacteria</p> <p><b>Integrating device in design:</b> Cut a pocket and add to the inner lining of the track</p>

4-		<p><b>Description:</b> A women's blouse with a collar and Princess cut to the midline and wide to the tail line and a long sleeve with a wristband</p> <p><b>Materials:</b> Use cotton or viscose fabric treated against bacteria</p> <p><b>Integrating device in design:</b> A small pocket to the bottom of the collar to install the trace device.</p>
5-		<p><b>Description:</b> A long woman's skirt with deep front pockets and a belt at the midline</p> <p><b>Materials:</b> Used cotton and blended fabrics may have cotton internal lining.</p> <p><b>Integrating device in design:</b> Cut additional small pocket installed in the pocket lining to install the trace device.</p>
6-		<p><b>Description:</b> A women's and men wristband a -like watch worn around the wrist inspired by the Saudi heritage</p> <p><b>Materials:</b> Treated plastics so not to cause allergies with sweat</p> <p><b>Integrating device in design:</b> Tracing device installed below the top surface</p>

7-		<p><b>Description:</b> Women's necklace</p> <p><b>Ores:</b> Galvanized metal treated and inlaid with stones</p> <p><b>Integrating device in design:</b> Add small cover behind the stones to install the trace device</p>
8-		<p><b>Description:</b> A women's bracelet is worn around the wrist</p> <p><b>Ores:</b> Galvanized metal treated and inlaid with stones</p> <p><b>Integrating device in design:</b> Add small cover behind the stones to install the trace device</p>
9-		<p><b>Description:</b> A female necklace</p> <p><b>Ores:</b> Galvanized metal treated and inlaid with stones</p> <p><b>Integrating device in design:</b> Add small cover behind the stones to install the trace device</p>
10-		<p><b>Description:</b> Women's and men's watches</p> <p><b>Integrating device in design:</b> Add an outer cover to install trace device behind it.</p>

**Discussions:**

Propose 10 designs using smart chips for Alzheimer's patients, as well as implement some of the proposed designs and use them by Alzheimer's patients.

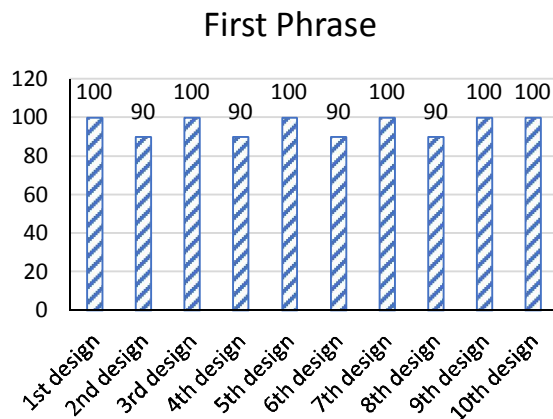
The proposed designs had to be presented to a group of arbitrators in the field of specialization to judge and evaluate them through an evaluation form that included ten elements.

The designs were presented to each arbitrator on its own, after the presentation of a letter from the researcher to the arbitrators attached to the evaluation form, and the arbitrator marks (√) within the box in front of the appropriate elements of the evaluation. The form contained three levels of assessment: appropriate, fairly appropriate, inappropriate.

- The first level (appropriate) means that the element is substantially available more than 75% to 100%.
- The second level (fairly appropriate) means that the element is moderately available, i.e., 50 to 75%.
- The third level (inappropriate) means that the element is available at less than 50%.

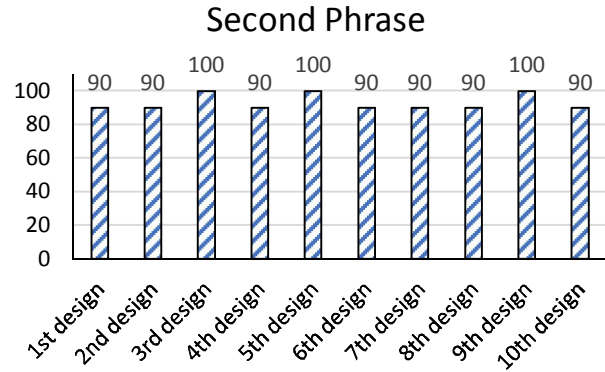
By reviewing the answers in the referees' questionnaire, the following are shown:

1- **The first phrase:** (the suitability of the materials proposed for the implementation of the designs): The results for designs (1, 3, 5, 7, 9, 10) were 100% appropriate, and for designs (2,4,6,8), 90% appropriate, 10% fairly appropriate, which indicating the suitability of the proposed materials for the designs.



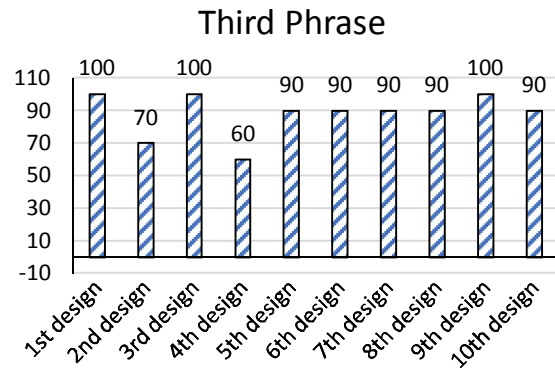
2- **The second phrase:** (Proposed designs provide the element of comfort during the daily activity of the Alzheimer's patient)

The results for designs (3, 5 and 9) were 100% appropriate, and for designs (1, 2, 4, 6, 7, 8, 10), 90% appropriate, 10% fairly appropriate, this indicates the availability of the element of comfort in the design.



3- **The third phrase:** (How appropriate is the integration of smart chips with designs)

The results in the designs (1, 3, 9) were 100% appropriate and in designs (5, 6, 7, 8 and 10), 90% appropriate and 10% fairly appropriate, Design 2 is 70% appropriate, 30% fairly appropriate, in design 4 is 60% appropriate and 10% fairly appropriate. This is indicative of the appropriateness of the integration of the Smart Chips and their consistency with the proposed design, but some opinions differed as to the appropriateness of integrating and their consistency with some of the proposed designs.

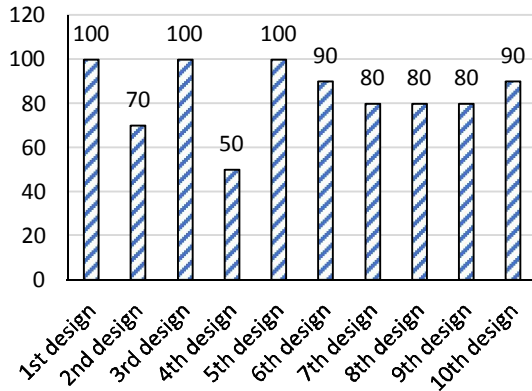


4- **The fourth phrase:** (availability of aesthetic value in designs)

The results in the designs (1, 3 and 5) were 100% appropriate, designs (6, 10) were 90% appropriate and 10% fairly appropriate, and design (2) were 70% appropriate 30% fairly appropriate, design (4) 50% appropriate 50% fairly appropriate, and design (7, 8, 9) 80% appropriate and 20% fairly appropriate, indicating the aesthetic value of designs implemented in terms of consistency and availability of design elements, as well as the availability of design basics.



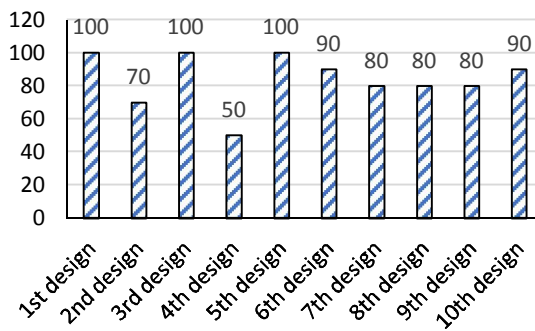
Fourth Phrase



5- **The Fifth phrase:** (Design elements Consistency in the proposed designs)

The results for the designs (1, 3, 5, 9, 10) were 100% appropriate, and for design (4, 6 and 7) 90% appropriate, 10% fairly appropriate, for design (2 and 8) were 70% appropriate, and fairly appropriate by 30%, the results of the applied study indicate the consistency of the design elements of the proposed designs, and fairly appropriate in most other designs.

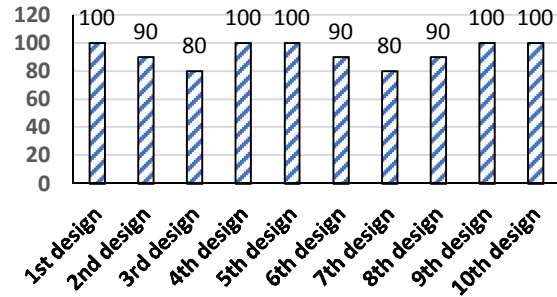
Fifth Phrase



6- **The sixth phrase:** (To what extent does the role of design basics in the proposed designs highlighted)

The results for the designs (1, 4, 5, 9, 10) were 100% appropriate, and the designs (2, 6 and 8) were 90% appropriate, 10% fairly appropriate, and designs (3, 7) is 80% appropriate and 20% fairly appropriate, indicating that the results of practical applications have highlighted the role of design basics.

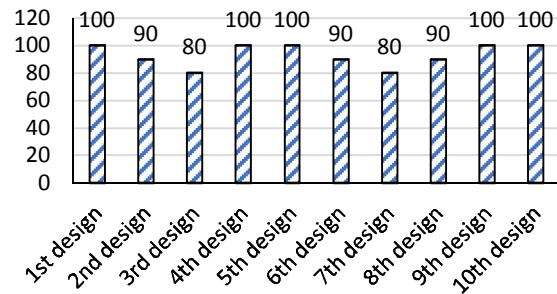
Sixth Phrase



7- **The seventh phrase:** (to what extent the proposed designs of contemporary in the design of clothing and Accessories):

The results for the designs (1, 2, 3, 5, 7, 9) were 100% appropriate and for designs (6, 8 and 10) were 90% appropriate and 10% fairly appropriate, Design (4) were 80% appropriate and fairly appropriate by 20%, the design final form results were appropriate, and fairly appropriate in some designs, which emphasized design suitability and its contemporaries in clothing accessories.

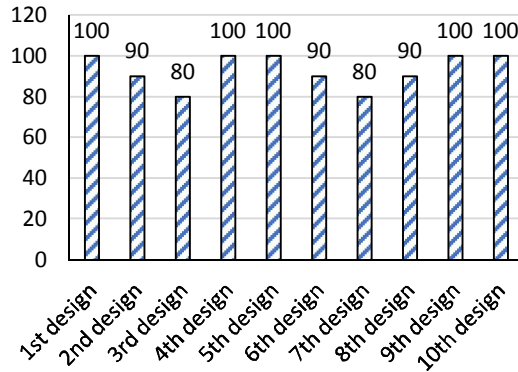
Seventh Phrase



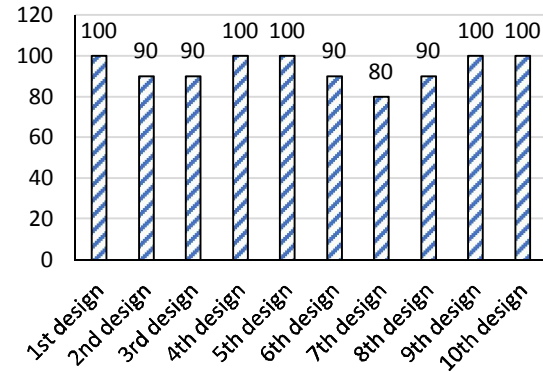
8- **Eighth phrase:** (Extent of validity of proposed designs for implementation)

The results for the designs (1, 4, 5, 9, 10) were 100% appropriate, and designs (2, 6 and 8) were 90% appropriate and 10% fairly appropriate, for designs (3, 7) were 80% appropriate and 20% fairly appropriate, indicating that the results of practical applications have confirmed the availability of eligible elements for implementation. This is confirmed by the statistical study through designs evaluation.

### Eighth Phrase



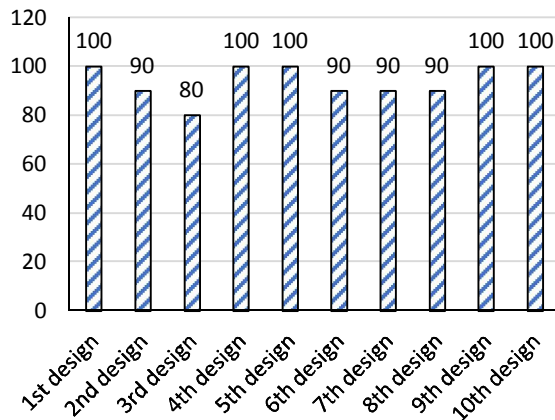
### Tenth Phrase



9- **The ninth phrase:** (the validity of the proposed designs as a commercial product)

The results for the designs (1, 4, 5, 9, 10) were 100% appropriate, and design (2,6,7,8) were 90% appropriate, and 10% fairly appropriate, and design (3) were 80% appropriate, and 20% fairly appropriate, indicating that the results of the practical applications that all designs are practical and applicable as a commercial product. This is confirmed by the statistical study.

### Ninth Phrase



10- **The tenth phrase:** (General Shape of the executed pieces)

The results for pieces (1, 4, 5, 9, 10) were 100% appropriate, and in pieces (2, 3, 6 and 8) were 90% appropriate, and were 10% fairly appropriate, and piece (7) were 80% appropriate, and 20% fairly appropriate, indicating that the results of the practical applications showed that the overall shape of the designs is suitable for use, as confirmed by the statistical study.

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