

Applying the Methodology of Kinetic Art on Contemporary Dynamic Architecture

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Abstract:

The technological progress is the breakthrough that helps some architects to utilize the capabilities presented in this age in order to achieve their dreams in reaching future architecture expressing their needs and adding modern aspects to architecture that never exist before. This also will enhance the approaching towards a virtual new world through which various images can be seen from one place via playing with time and place as well as moving the environment around him to be a kinetic dynamic architecture characterized by transformation and impermanence of one vision over time.

The kinetic is considered as the main form of nature starting from the kinetic of galaxies and planets to the kinetic of electronics inside the atoms and each has an impact on nature. This is considered as an integrated part of the modern architecture as it is the method that is used in expressing the architectural ideas. During the previous century, art witnessed an essential transformations in terms of its concept, approaches and subjects. Moreover, this was the result behind the technological development that contributes in developing many domains such as art in all of its forms such as photographing, sculpture and architecture. In addition, this results in creating modern artistic approaches, that is kinetic art that builds up new structural expressions for the artistic work that focus on the dynamism of this work and moving it from its stability and calling for the interaction between the artistic work and the receiver via the interactive relations between them. We can see that using the kinetics is developed from being used in the kinetic artistic works to reach the existence of a moving building from inside and outside. The dynamic architecture is the creative new perspective that appears in the contemporary architecture. Moreover, it depends in its design on the dynamism of the kinetic and it is considered one of the architecture forms that have the ability to adapt and coincide with the surrounding environment due to its ability to uptake the various changes even the future needs and how to deal with them flexibly in order to achieve the sustainable environment.

Thus, the significance of the research appears in the necessity to acknowledge the philosophy of kinetic in architecture and its reflection on the appearance of the kinetic art and the identity

of the dynamic architecture and the forms of the kinetic it depends on as well as the extent of its effect on architecture.

Keywords:

Applied methodology, kinetic art, dynamic architecture

The general framework of the movement

movement concept

It is the state of the body changing from a state of stillness from one place to another, and it is called Motion or Movement, and kinesiology studies the movement process precisely through how the body's position changes from a state of rest to movement with time. (Material, force, distance, time), in addition to studying the quantities on which the science of mechanics is concerned with movement, namely (vacuum, time, mass, and force).

Movement is also known as the movement of a body or part of it from one place to another at a specific speed, and that is the result of specific forces that result in its resistance. .

movement principles

Principles of motion are the foundation through which a specific cultural understanding of good design is defined and defined, and include: "time, physics and balance, velocity and acceleration, form and repetition, mass and weight, complexity and scale."

Recommendations:-

1) The research recommends designers and architects to use movement and employ it in modern architecture in order to eliminate boredom resulting from the typical or repetitive design of architectural facades, which helps to eliminate monotony and create different architectural forms.

References:

1. Alhadad, Mohamed Moner Zakaria (2008), Alboad alzaman Al ad Alrabaa fi al amalia al tasmemia- al emara al denamecia mafhom tatbeki, Magester, Kolit alhandasa, Qsm al Emara, Al Gamaea al Eslamia.
2. Alhesnawi, Ali Shinawa Waadi (2011), Al abaad Al mafahemia w Al gmalia Lldadania w Anekasha fi Fan ma Baad al Hadasa, Dar safaa llnashr w Altawzee, Aman
3. Bebawi, Morad Hakem(2014), handast al maarfa w enqraait al sora al electronia lethraa al saqafa al fania fi al tarbia al fania, Alam Al kotob llnashr W al tawzea.
4. Hussin, Amira Ahmed(2017), taadood al roaa al gamalia llnashgholat al fania al waheda lethraa madat al ashghal al fania, al magala al tarbawia, kolit al tarbia, gamete in shams,s256-257
5. Hedar, Negm(2000), al wakea w al wakieia ben al motakhail w al wogod al feziaei, magalt kolit al fonon al gamila, al adad al tamin, mogalad 28, kolit al fonon al gamila, gamiet baghdad,s74.
6. Rafaat, Ali (1992), solaset al ebdae al miemarym, dawrat al ebdae al fekry, emarat al mostakbal, markaz abhas interkonslt , al kahira, masr.

7. Saad, Mohamed Ezzat- Sadek ,Mofida- Farouk, Samar(2020), al fan al haraki mn manzor al tasmem al senaei, magalt al tasmem al dawlia, mogalad 10, adad 3, s88.
8. Swedan, Mohamed mohamed Ahmed (2014), Tawfer al taqa fi al emara al denamikia kawsela lwade dalil amali mohadad llmaeayer al tasmemia llmabani al denamikia, resalit magester, kolit al handasa al memaria , gameat al qahira.
9. Sharteh, Alan emil (2008), manzomt al fnon al gamila, targamit: soliman harfosh, al tabea al oula, dar kanean llnashr, demashq,s255.
10. Sherazat, sheren ehsan (1983), mabadea al fan w al emara, maktabet al eakaza al Arabia llnashr,s17.
11. Saber, Ahmed Mahmoud (2015), khasaes w semat al emara al denamecia- al boed al rabe- al zaman, magalet al elom al handasia, mogalad 43, al adad 5, s788.
12. Abedad, Abdullah hussien (2016), falsafet al benia fi al fan al haraki- motharekat alksander Kalder namozagan:derasa wasfia tahlilia, magalet kolit al tarbia, gameit al askndria, mogalad26, al adad 6,s10.
13. Abdurahman, Saed – Samir, Ola Mohamed- yehiam Merihan Mohamed, athar al boed al rabee ala tatawor al tasmem al denamiki(al haraki) bltasmem al dakhli w al asas, magalt al emara w al fnon, al adad 12, al goza al awel, s517.
14. Abel ghani, olfat soliman (2012), tataor mafhom al haraka w enekasha ala al nateg al memary, moatamer al Azhar al handasi al dawli al thani ashar.
15. Abdelaati, Mahmoud (1987), tawzef al boed al thalesal haqiqi fi al taswer al hades, derasa tagrebiam resalit doktorahm kolit al tarbia al fania, gamiet Helwan.
16. Alaa, Enas tawfeq ahmed (2013), mafhom al estedama fi al mabani al denamecia, resalit magester, kolit al fnon al gamila, gameit al askandria.
17. Kothom, lotus(2017), mabadea al emara al harakia w tekniatha, magalit al emara twenty two, adad 54,s117.
18. Nasar, Ola(2017), Mafhom al emara al harakia w tatorha tarekhian, magalit al emara twenty two, adad 54,s82.
19. Hesham, Ola- Salah, Hala- Ibrahim, Mai(2019), Falsafet al haraka mn khilal al boed al rabee w mardodoh ala al tasmem al dakhali, magalit al emara w al fnon, al adad al tasee ashar, s635.
20. Yousif, Mohamed – Ibrahim, abdelbaai: Scout robot gelam (1992), osos al tasmem: ketab motargam, dar naheded masr, al kahira, masr, and s47-48.
- 21) Adeelson, Edward (2004), lightness perception and lightness Illusions, Massachusetts Institute of Technology, Massachusetts. P1.
- 22) Bonnimazion, Sarah (2007), Responsive Textile environments, Canada, press:
- 23) Riversdale ,Yolande Harris: AD (2000), "From Moving the Imge to Moving Architecture- A discussion of the "Space-Time" phenomenon of the twentieth century, with particular reference to architecture, moving img, and music. "Grant Chester Cambridge England, Pp2.
- 24) Zellner, Peter (1999): AD Hybrid space: New Forms in digital architecture: Thames and Hudson Ltd: London, P2.
- 25) http://www.jehat.com/ar/Tashkeel/studies/Pages/f_sudani.html
- 26) <https://weekly-geekly-es.imtqy.com/articles/ar406733/index.html>
- 27) <http://greentopia.com.br/sistemas-inteligentes/>
- 28) <https://byarchlens.com/architecture-dynamic/>
- 29) www.worldbuildingsdirectory.com/index.cfm