

A SUSTAINABLE NURSING HOME FOR SENIOR PEOPLE

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Situation

- ❖ None of the sustainable houses in the world are designed for senior people
- ❖ Senior people receive minimal care and suffer from lack of attention in conventional crowded nursing homes [1]
- ❖ Seniors usually have lower immunity than younger people and suffer from several medical problems



Figure 1 (socialmediainbusiness.com)



Problems

- ❖ Excessive amount of energy is being consumed, causing more pollution
- ❖ A lot of water is being wasted nowadays despite the increasing demand
- ❖ Senior people are not receiving good care due to the shortage of staff in conventional nursing homes [1]
- ❖ Smart devices require a specific type of connections
- ❖ Air pollution is threatening humans and the environment [2]



Solutions

- ❖ Using green concrete
- ❖ Building a living wall
 - Green roof
- ❖ Implementing motion sensors on the floor to monitor footsteps [3]
- ❖ Providing Amiigo fitness bracelets and Independa's Angela
- ❖ Setting ZigBee wireless (figure 2)

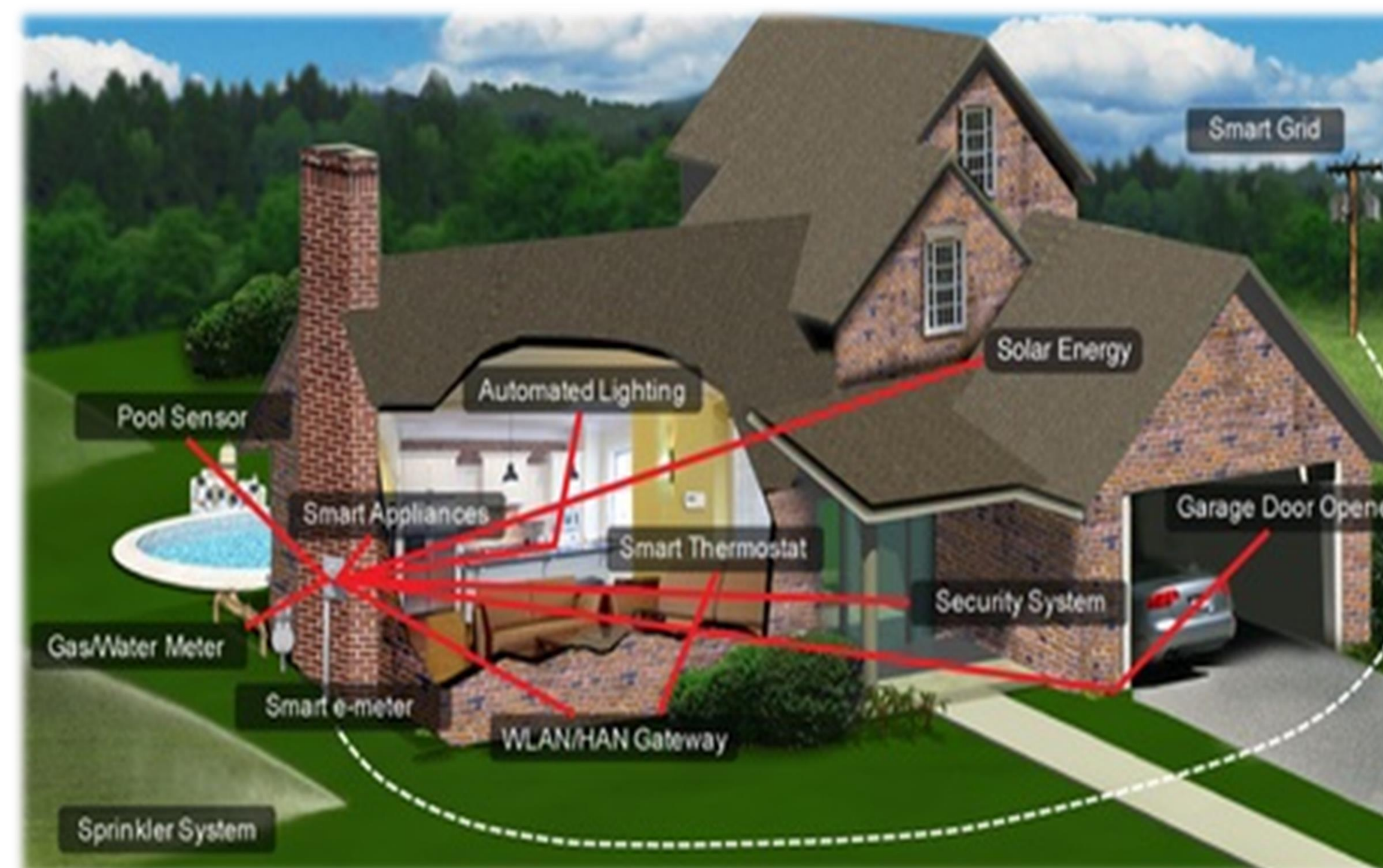


Figure 2 (www.smallformfactors.com)

- ❖ Installing geothermal heat pump (figure 3)
 - Cooling and heating mechanisms

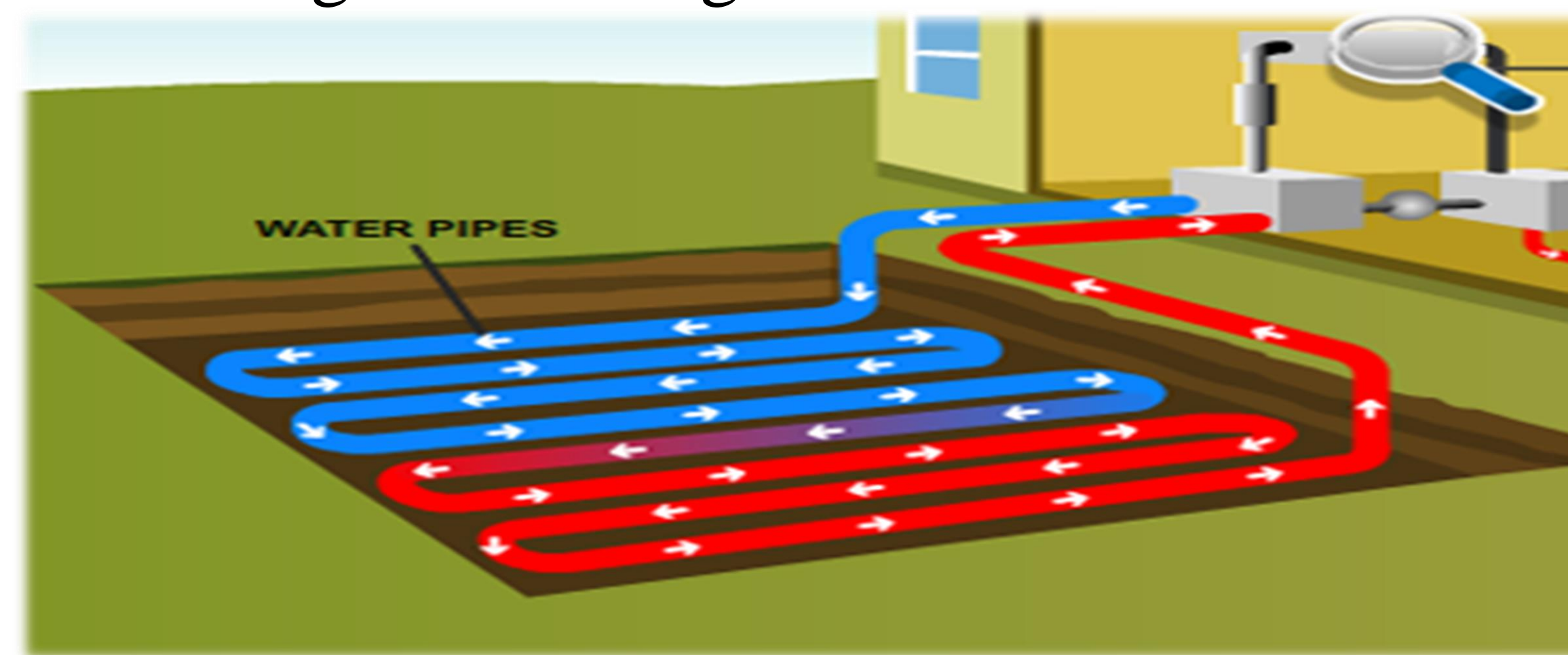


Figure 3 (www.Guernseydonkey.com)

- ❖ Mounting plasma air ionization equipment



Evaluation

- ❖ Green concrete and living wall reduce operation, utility and maintenance costs and enhance performance and efficiency (figure 4)

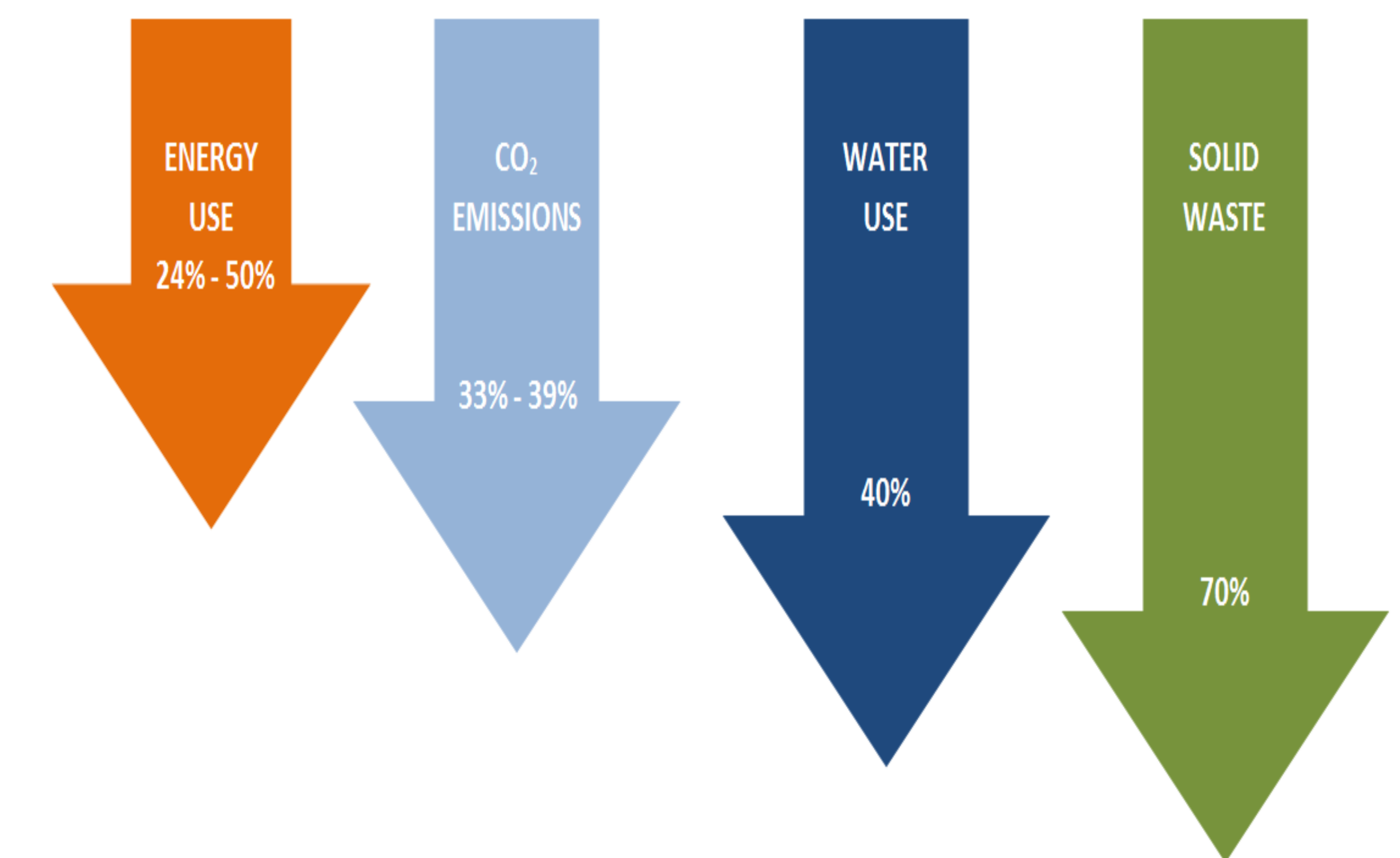


Figure 4 (www.getenergysmarternow.com)

- ❖ Motion sensors and bracelets are easy to implement and affordable
- ❖ Senior people may have privacy issues
- ❖ ZigBee has a long battery life
- ❖ GSHP reduces electric bills
- ❖ Plasma air ionization improves indoor air quality

References:

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- [3] A. Eisenberg, *A Smart Home, to Avoid the Nursing Home*. New York City: New York Times, 2001.
- [4] Anonymous, *Research and Markets: Smart Houses: Wireless ICT – Addressing the Development of Wireless ICT to Support Smart Houses*. Coventry: Normans Media Ltd, 2010.