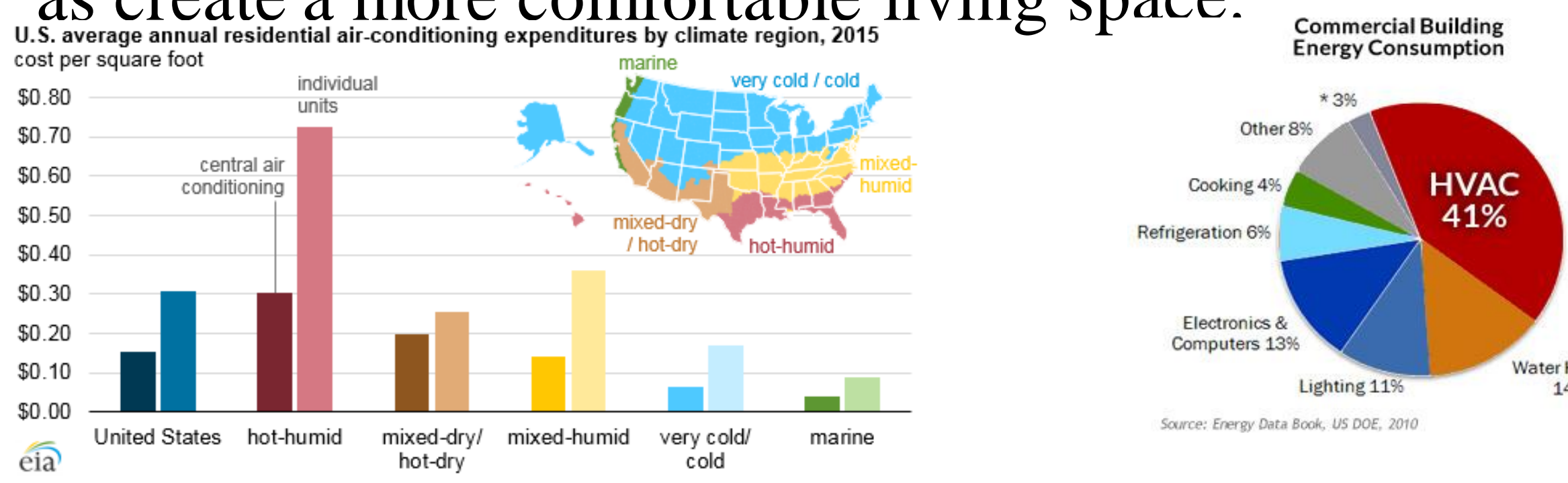


Abstract

SMARTair is an all-in-one room-to-room AC and lighting control. It uses recess lighting with dimmers and vent dampeners in order to control the light level and airflow in a given room/area. This will work as smart home style technology and allow the user to control different parts of a house simultaneously via wall mounted interfaces as well as smartphone app. It seeks to solve the problem of multiple member households as well as increase energy efficiency.

Need for Project

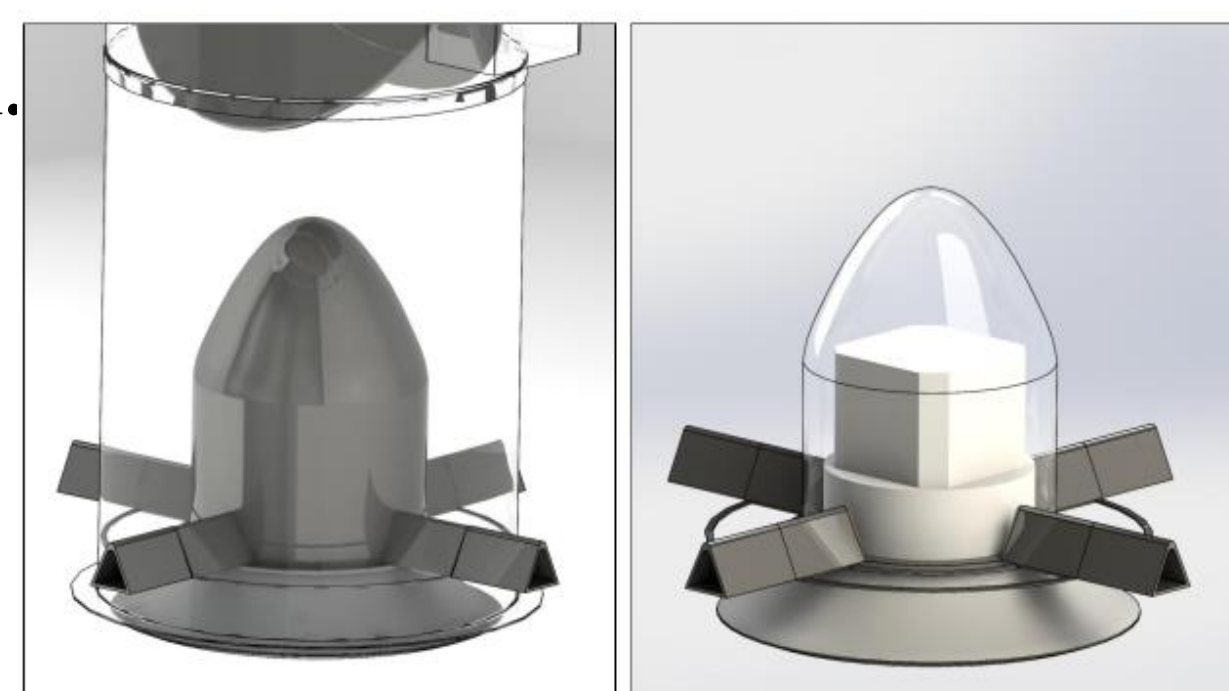
SMARTair seeks to address the problem of different AC/lighting needs in different rooms simultaneously. It will allow multiple users to personalize a given room/area or shut off that area if need be. It should also be able to set up routines and detect occupation levels in order to semi-autonomously change the AC/lights in an area. All of this should increase energy efficiency as well as create a more comfortable living space.



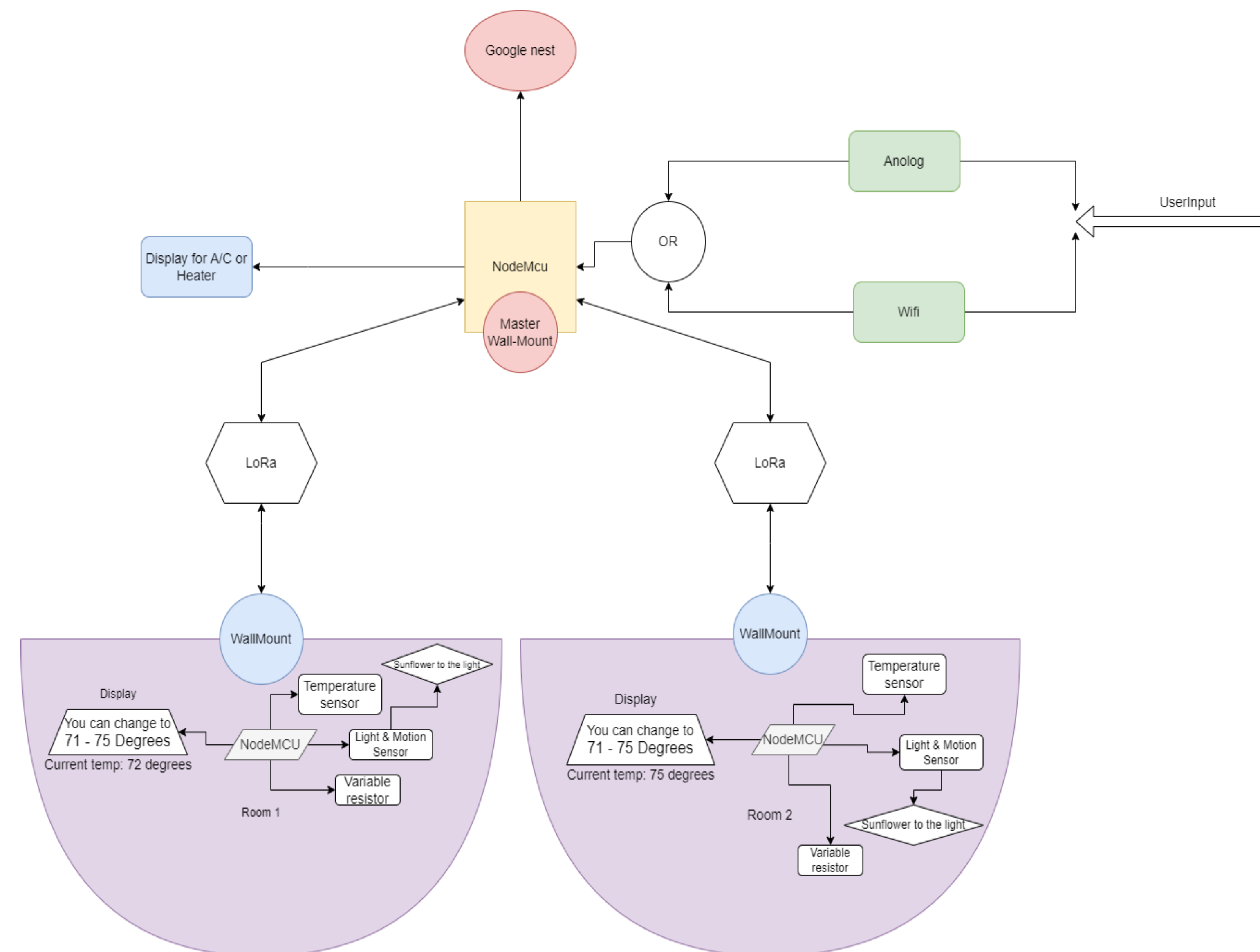
Design Concept

Since this project involves a house spanning system our sponsor has seen fit to assign three different teams to this project; each team being given a part of the project. We were assigned the lighting and sensors of the project. We used ambient light sensors to detect sunlight and control the lights in a room accordingly. We used temperature sensors to control the AC airflow of a room and motion sensors to detect the occupancy of a room.

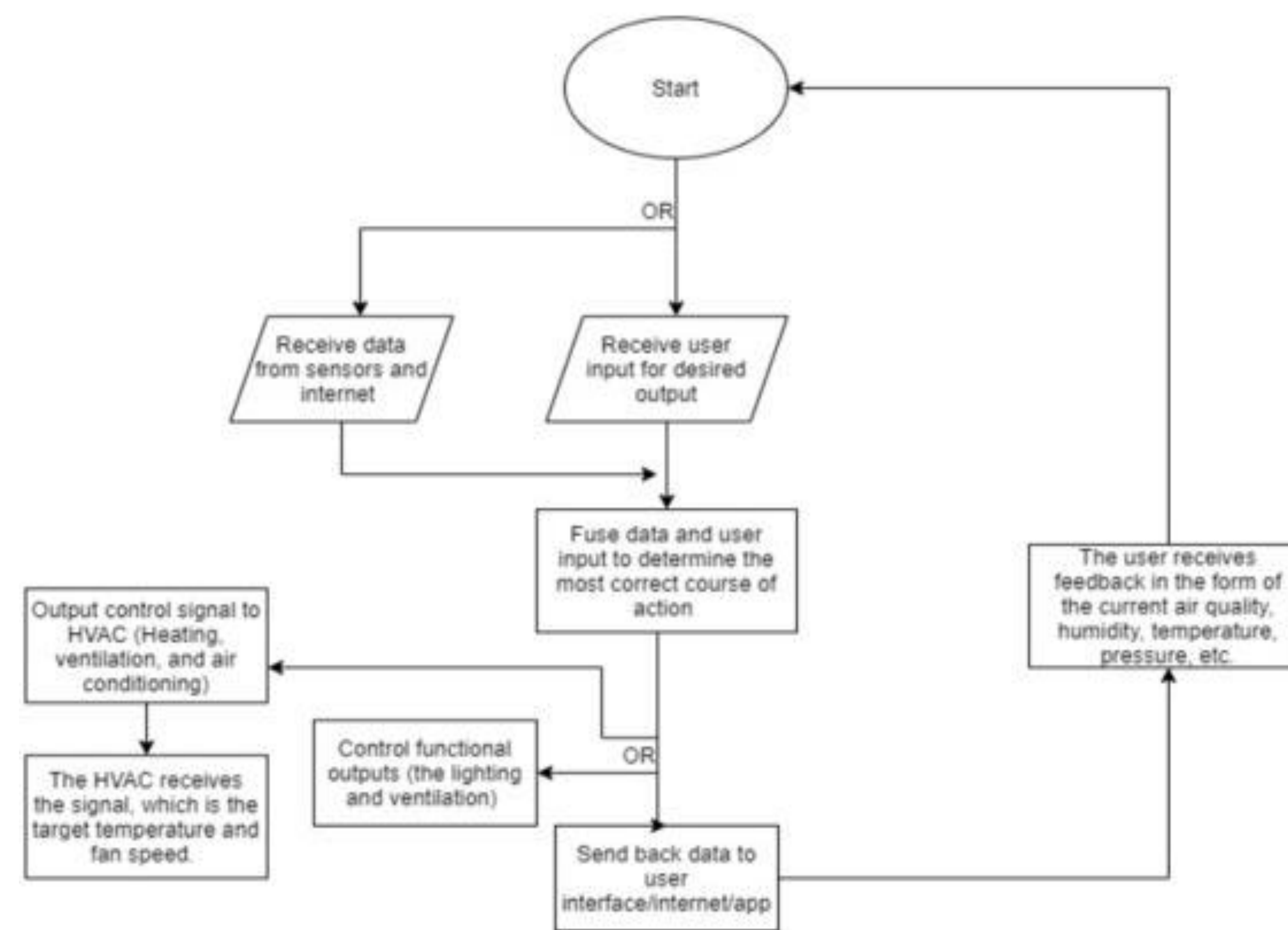
Sensor holder and damper design



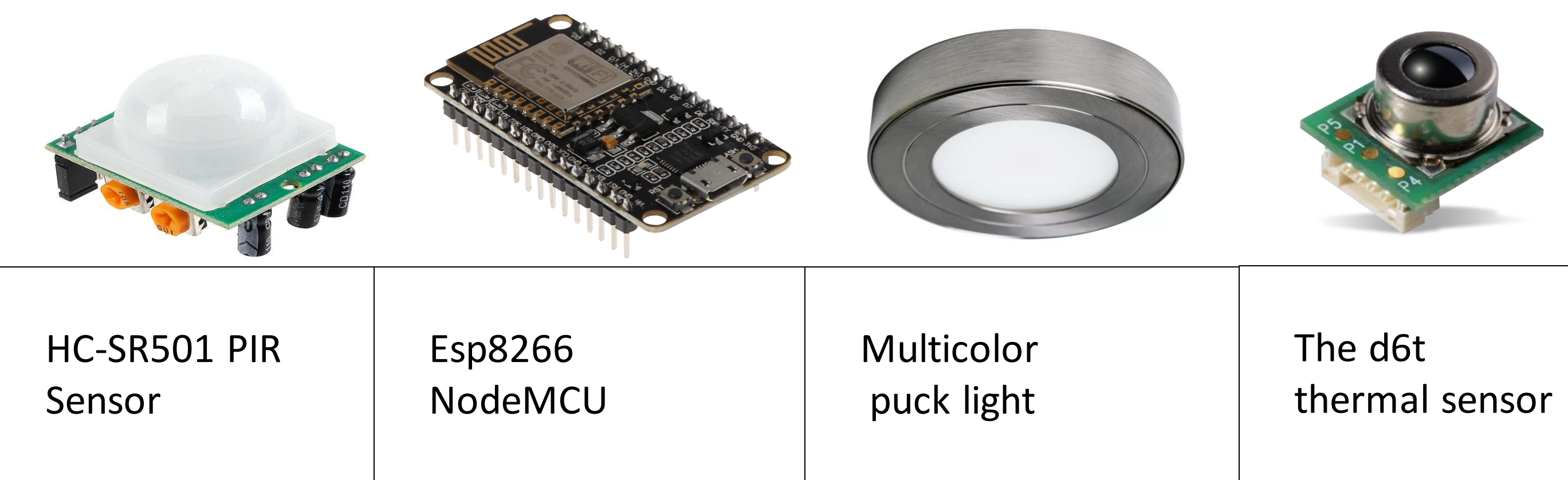
Block Diagram



Software Design



Components



Conclusion

In Conclusion, we believe that the SMARTair system could revolutionize the way home HVAC systems operate and the Smart style devices. While the SMARTair system isn't a completely novel idea it is still the first that will seek to operate semi-autonomously and with little to no maintenance. With some smart design and a little luck, SMARTair could be implemented in houses all across the world; saving in energy usage and making the lives of millions of people just a bit easier.

Glossary

- Wall Mount** – a touch screen user interface to control the system
- Smart House** – A house in which devices are connected and controlled remotely
- Room** – Room in this context means an area in a house/building that is controlled by an individual wall mount

Acknowledgement

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Cool Room Team

"For a cool time! Even in a desert or the sun itself"