EML4551-2

A/C Preference Troubleshooting Device

14-Nov-19

Team Introductions

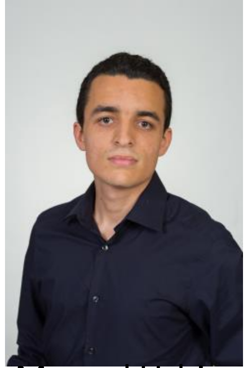
John Bradshaw
Team Leader

Edine Landoure
Design Enginee

Woodley Fevrius
Systems Engineer

Darryl Brooks
Tech Lead

Curtis Rahman
Software Engineer



Manuel Urbina
Programmer Specialist

Sponsor

Dr. Devine is the project sponsor, and the Entrepreneur in Residence at the FAMU-FSU College of Engineering.

Manuel Urbina

Advisors

ME Advisor

Dr. Shayne McConomy

Project Advisor

Dr. Neda Yahgoobian

ECE Advisor

Dr. Jerris Hooker

Manuel Urbina

Objective

Design a device that allows the optimization of the A/C temperature for several different inputs for a given space

Project Background

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Customer Needs

- Allow everyone to have their satisfying temperature and air flow.
- To cut out the need for maintenance
- Keep the overall system in place just improve the possibility for everyone to set their preferences
- **Allow customers to directly regulate their own temperature.**
- **Create a device to control the temperature for better comfort.**
- **Allow multiple people to set up their temperature preferences.**
- Redistribute to everyone their freedom of choice about the temperature.
- Allow users to manage their own room temperature
- Use an algorithm to determine what times the user is too hot or too cold. From there the unit will autonomously control the room temperature
- Product to be modular for different systems.

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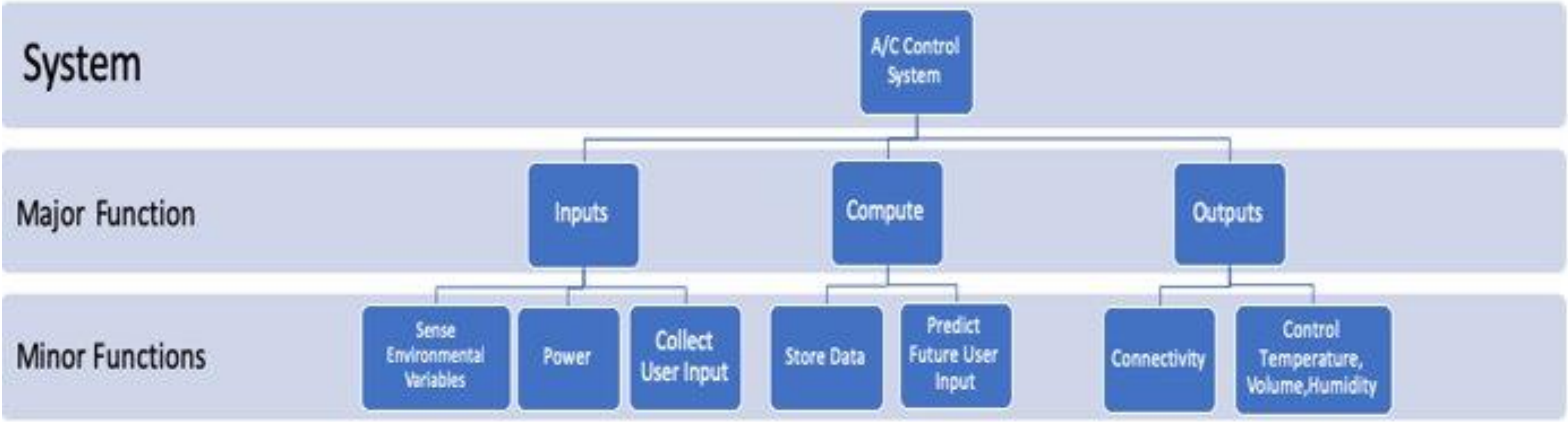
Functional Decomp



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Concept Generation

<table>
<tr><th>Communication Method</th><th>Type of Data Manipulation</th><th>Environmental Outputs</th></tr>
<tr><td rowspan="2">RFID</td><td rowspan="2">SQL</td><td>Temperature</td></tr>
<tr><td>Volume of Air</td></tr>
<tr><td rowspan="2">BlueTooth</td><td rowspan="2">Fuzzy Logic</td><td>Humidity (Moisture in Air)</td></tr>
<tr><td>Temperature and Volume</td></tr>
<tr><td rowspan="2">Application</td><td rowspan="2">Supervised Learning</td><td>Temperature and Humidity</td></tr>
<tr><td>Air Flow</td></tr>
</table>

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Concept Selection

		Engineering Characteristics					
Improvement Direction		↑	↓	↓	↓	↓	↑
Units		MPa	sec	min	sec	n/a	years
Customer Requirements	Weight Factor	Material Rigidity	Time to change temperature	Installation time	Connection time	User interface	Reliability
Satisfy Temperatures	0.43974	1	9	3	9	9	1
Easy Process	0.14002	1	3	9	9	9	3
Preference Control	0.19431	1	3	1	1	9	3
Individual Temp Control	0.12214	3	9	1	1	1	1
Prediction	0.06295	1	1	1	1	3	1
Compatibility	0.04084	3	1	9	1	9	1
Raw Score	25.31874283	1.32595735	6.163678458	3.326399042	5.597267253	7.277621081	1.627819643
Relative Weight %		5.237058409	24.3443306	13.1380893	22.10720845	28.74400649	6.429306754
Rank Order		6	2	4	3	1	5

Embodiment

Upcoming Presenter’s Name

Manufacturing

Upcoming Presenter’s Name

Testing

John Bradshaw

Validation

- Temperature Change
- Time of temperature Change
- User Temperature Satisfied and Maintained
- System Individualized and Personalized

Project Management

Two Week Plan

Most Important Points

1. The quick brown fox jumps over the lazy dog.
2. The quick brown fox jumps over the lazy dog.
3. The quick brown fox jumps over the lazy dog.
4. The quick brown fox jumps over the lazy dog.
5. The quick brown fox jumps over the lazy dog.
6. The quick brown fox jumps over the lazy dog.

Lessons Learned

Reference

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Questions (be sure to design your own)