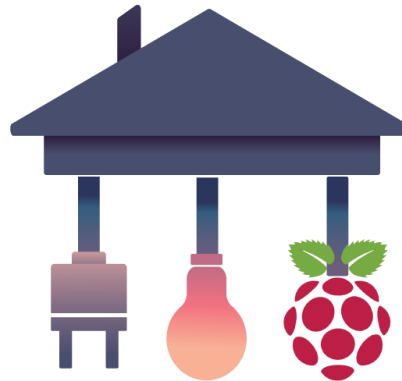


Universitatea “Alexandru Ioan Cuza” Iași
Facultatea de Informatică



Implementarea unui sistem software de tip Smart Home

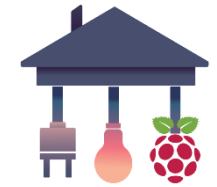


Autor:
Nicușor TURCU

Coordonator științific:
Lector doctor Cristian FRĂȘINARU

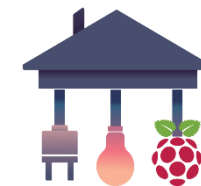
Sesiunea: Iulie 2018

Cuprins



1. Motivație
2. Ce este Smart Home?
3. Arhitectura sistemului
4. Aplicația web
5. Server REST Java
6. Dispozitive inteligente
7. Dispozitive utilizate
8. Direcții de dezvoltare
9. Concluzii

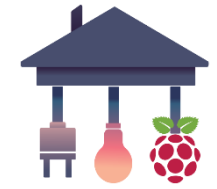
Motivație



- Literatura științifico-fantastică - Ray Bradbury.



Ce este Smart Home?



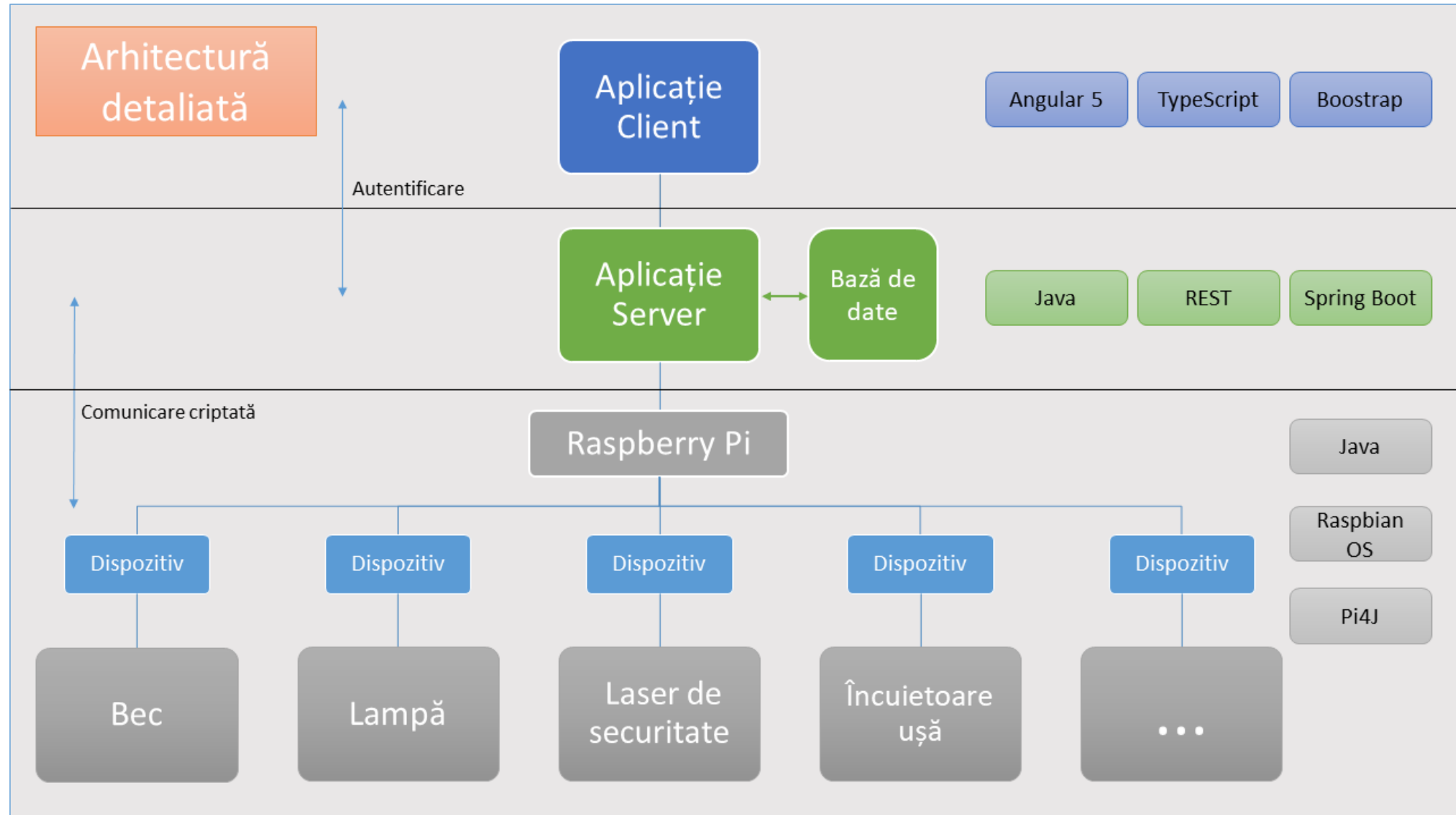
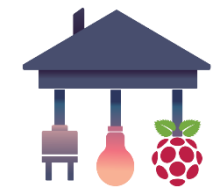
Reședință controlată de la distanță.

Oferă:

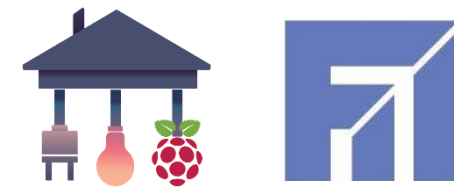
- Confort,
- Securitate,
- Economii de timp, bani și energie.

Software-ul de calculator joacă rolul unui agent inteligent.

Arhitectura sistemului



Aplicația web



Angular 5

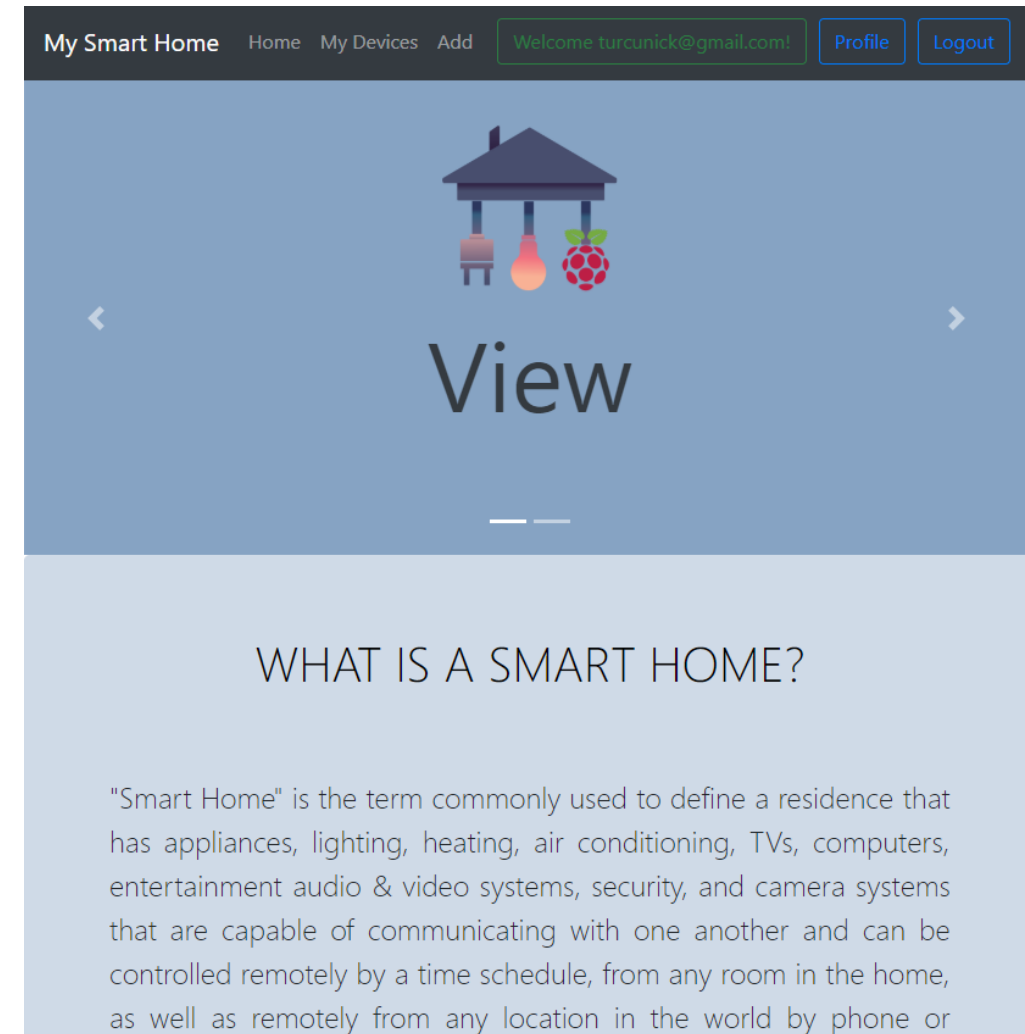
Bootstrap 4

HTML

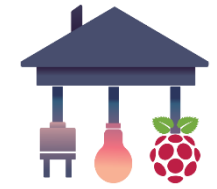
CSS

Typescript

- Design:
 - Intuitiv
 - Modern
 - Simplist
 - Responsive
- Comunicare HTTP cu serverul Java.



Server REST Java



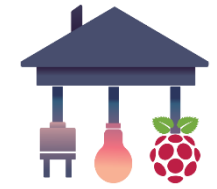
API REST

SSL/TLS

Java

- Manager de dispozitive
- Protocol de comunicare personalizat
- Comunicare securizată cu dispozitivele

Dispozitive inteligente



Raspberry Pi

Arduino

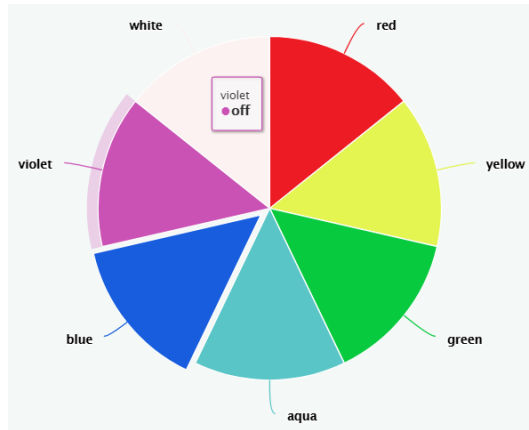
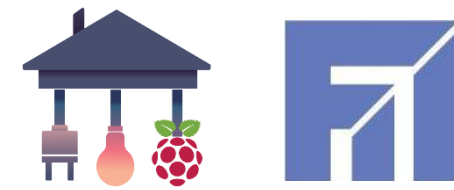
PI4J

SSL/TLS

Java

- Raspberry Pi
- Dinamicitate în expunerea configurărilor dispozitivelor

Dispozitive utilizate



Lampă



Bec



Laser de securitate

Dispozitiv

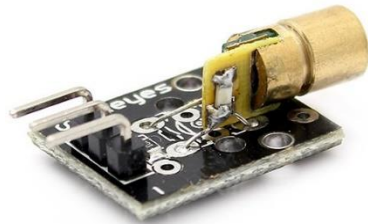
Hardware



KY-016, Modul LED cu 3 culori

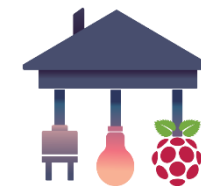


KY-011, Modul LED cu 2 culori

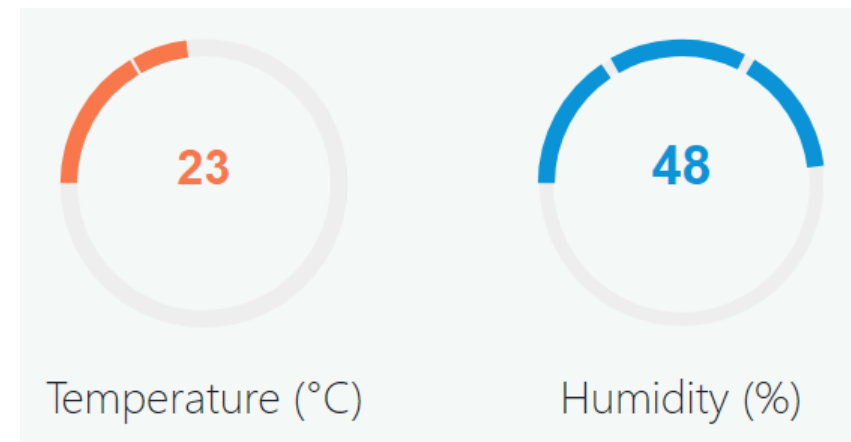


KY-008, Modulul senzor laser

Dispozitive utilizate



Încuietoarea ușii



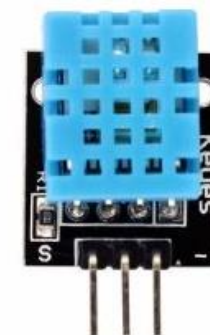
Monitor ambianță locuință

Dispozitiv

Hardware

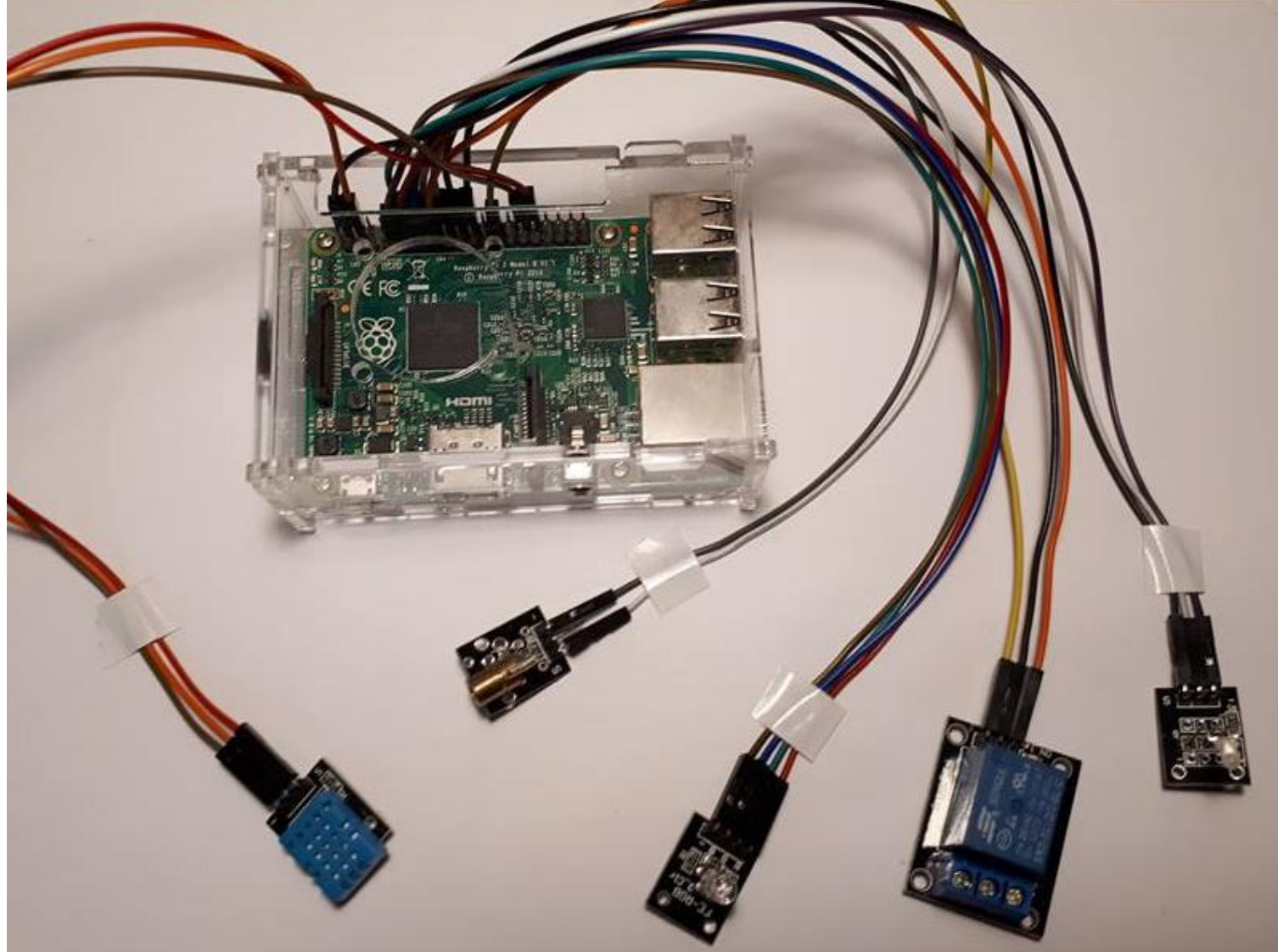
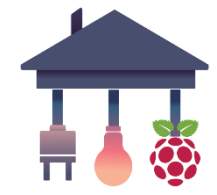


KY-019, Modul releu 5V

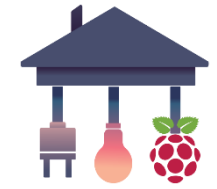


KY-015, Modulul cu senzor de temperatură și umiditate

Demo

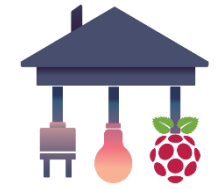


Directii de dezvoltare

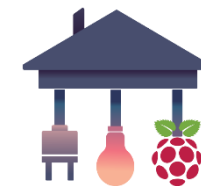


- Creșterea numărului de dispozitive;
- Creare a grupuri de utilizatori;
- Folosire HTTPS.

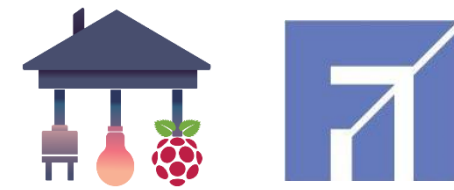
Concluzii



- Arhitectură bine construită.
- Consider că lucrarea și-a atins scopul.
- Demonstrarea avantajelor sistemului.
- Experiență cu o gamă largă de tehnologii.



Întrebări?



Mulțumesc pentru atenție!