artevelde hogeschool
LID VAN DE ASSOCIATIE UNIVERSITEIT GENT

PRODUCTIE DOSSIER
WEB OF THINGS

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SMART HOME

INHOUDSOPGAVE

1. DISCOVER

1.1 BRIEFING

Wij maken een simulatie van een smart home systeem. Het is de bedoeling dat we via een IONIC app een smarthome applicatie ontwikkelen die in verbinding staat met een raspberry pi via een firebase database.

2.DEFINE

2.1 ANALYSE

2.1.1 CONCURRENTIE

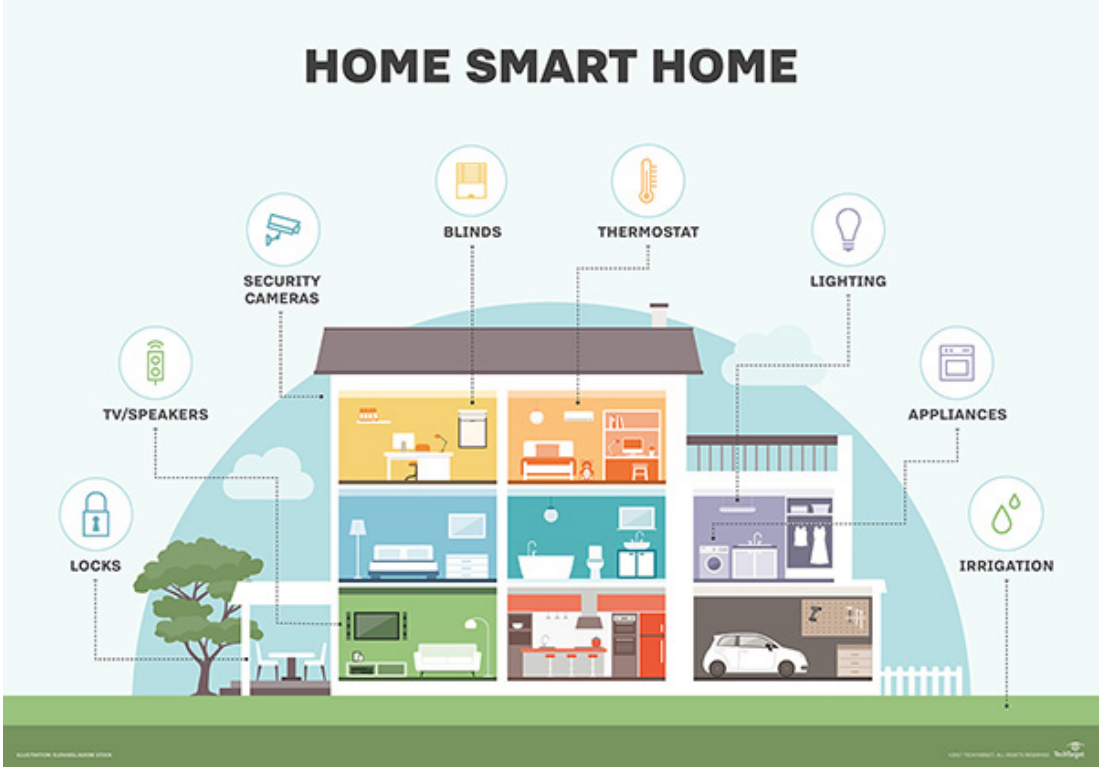
Als je denkt aan smarthome dan denk je meteen aan NEST van google of de lampen van philips HUE. Dit zijn de bekendste maar dit is nog maar het topje van de ijsberg. Er is een heel breed aanbod ondanks dat smart home systemen eigenlijk nog niet veel gebruikt worden.

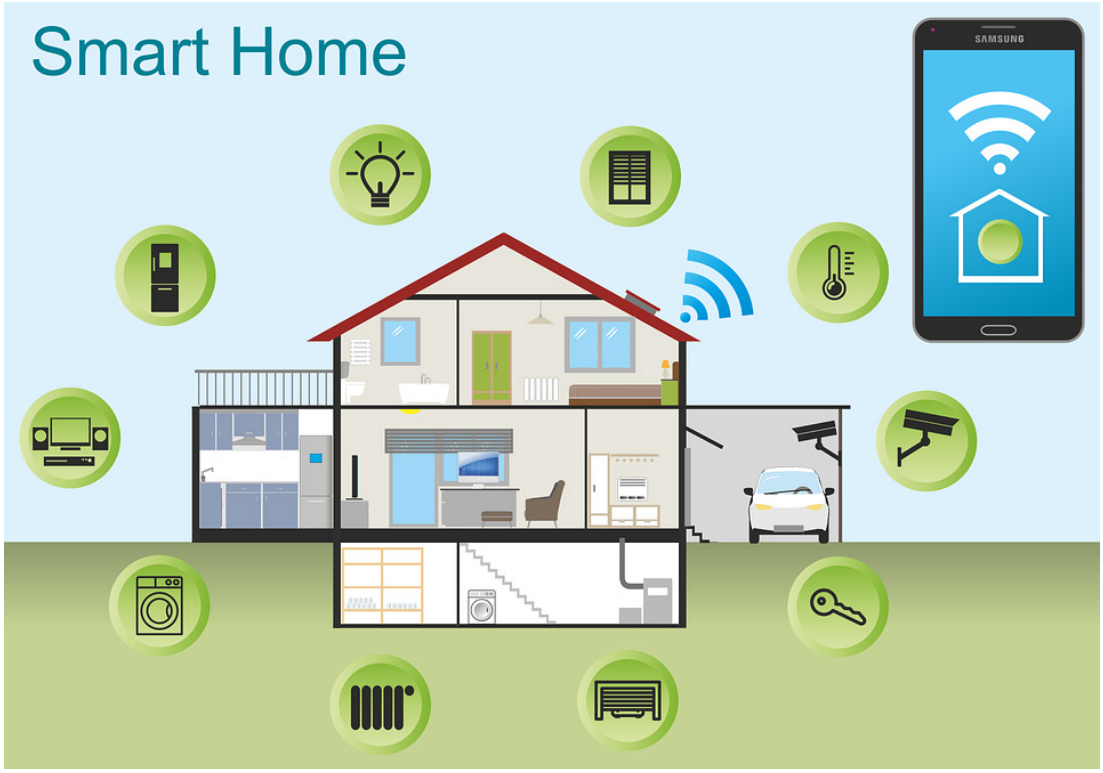
2.2 PLANNING

WEEK	DOEL
week 1 (20/11 - 26/11)	Concept bedenken
week 2 (27/11 - 03/12)	Opzet Project
week 3 (04/12 - 10/12)	Lichten
week 4 (11/12 - 17/12)	Deurbel
week 5 (18/12 - 24/12)	Muziek
week 6 (01/01 - 07/01)	WebRTC
week 7 (08/01 - 12/01)	Afwerking

2.3 INSPIRATION

2.3.1 IDEABOARD





3. DESIGN

3.1 SITEMAP APPLICATIE

1.0 LIGHTS	2.0 GALLERY	3.0 MUSIC

3.3 STYLE GUIDE

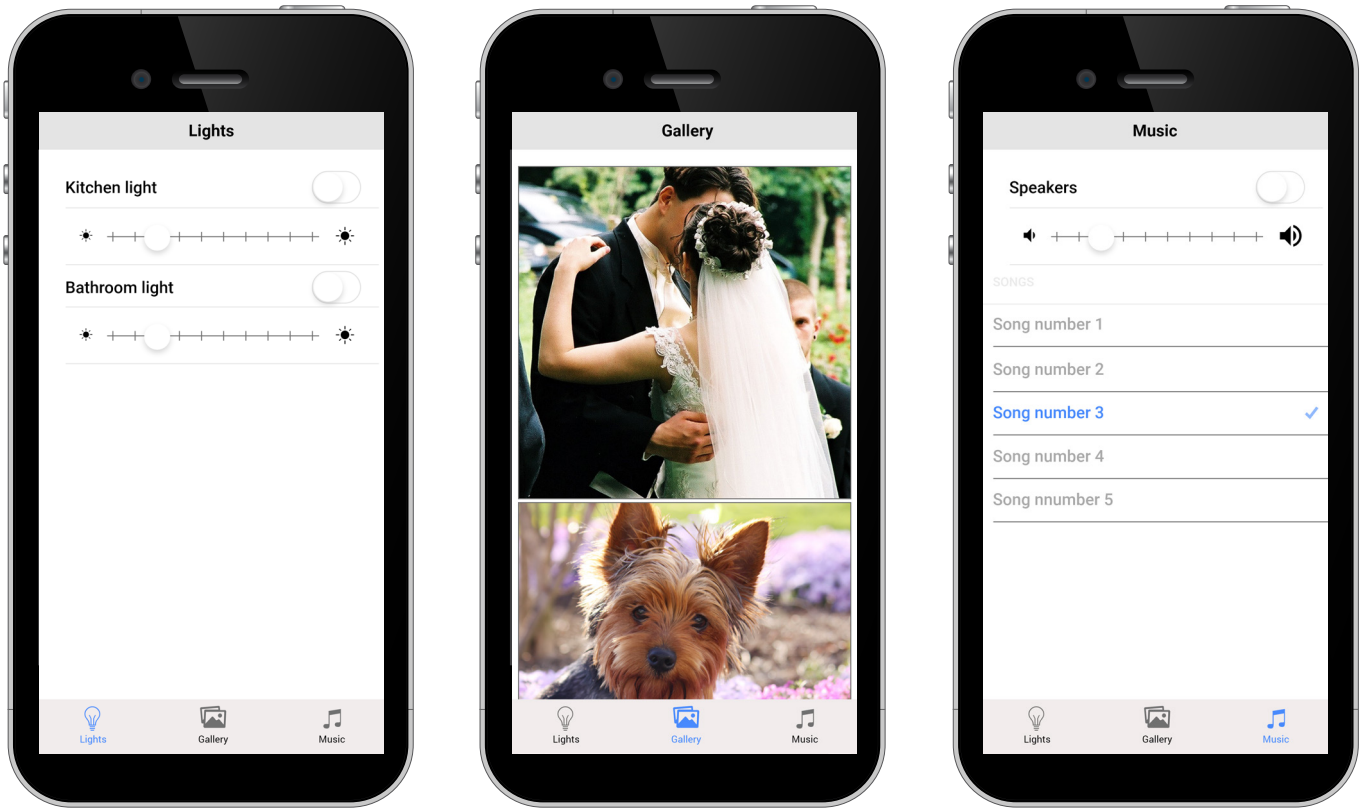
3.4.1 COLORS

#000000	#E4E4E4	# 478AFE	#FFFFFF

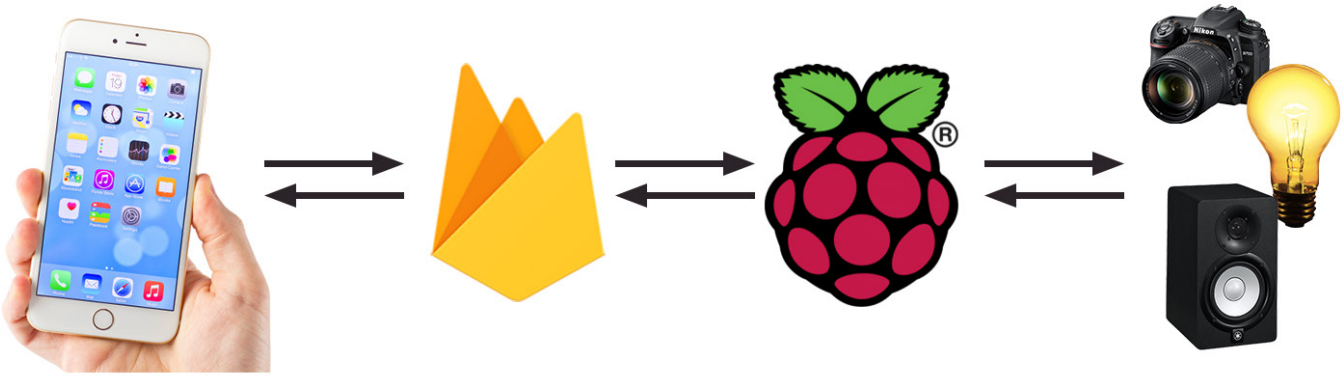
3.4.2 FONTS

- Roboto - Bold
- Roboto - Medium

3.4 VISUAL DESIGNS



3.5 OPSTELLING



4. DEVELOPMENT

4.1 CODE SNIPPITS

4.1.1 WERKING LICHTEN

Ionic lichten aan uit:

```
ChangeLight(num) {
  //connect to the firebase database
  let database = firebase.database();
  //choose the right table in your firebase database based on the num parameter to know which light it is
  let ref = database.ref("Lights/Light"+num);
  //execute the toggleLight function once when you get a value back from firebase
  ref.once("value").then(toggleLight);

  function toggleLight(data) {
    //get the value in the data snapshot
    let refVal = data.val();
    let changedVar;
    //check to see if light is off if so give back true
    (refVal.on == "false") ? changedVar = "true" : changedVar = "false";

    //update the db
    ref.update({ on: changedVar });
    return;
  }
}
```

Ionic dimmen lichten:

```
//function to adjust brightness level of lamps
AdjustBrightness(num,data) {
  //connect to the firebase database
  let database = firebase.database();
  //choose the right table in your firebase database based on the num parameter to know which light it is
  let ref = database.ref("Lights/Light"+num);
  //execute the AdjustBrightness function once when you get a value back from firebase
  ref.once("value").then(AdjustBrightness);

  function AdjustBrightness() {
    //update the freq table of your light with the data returned from slider
    ref.update({ freq: data });
  }
}
```

Python waarden lichtwaarden ophalen:

```
#lights
Light1 = db.reference('Lights/Light1').get()

if(Light1['on'] == "true"):
    p.ChangeDutyCycle(Light1['freq'])
elif(Light1['on'] == "false"):
    p.ChangeDutyCycle(0)

Light2 = db.reference('Lights/Light2').get()

if(Light2['on'] == "true"):
    t.ChangeDutyCycle(Light2['freq'])
elif(Light2['on'] == "false"):
    t.ChangeDutyCycle(0)
```

5. DEPLOY

5.1 DEPLOYMENT GUIDE

5.1.1 IONIC

1. Installeren van ionic:

```
npm install -g cordova ionic
```

2. Start ionic app:

```
Ionic serve
```

5.1.2 RASPBERRY

1. Firebase (Zorg ervoor dat uw tijd correct is ingesteld!)

```
sudo pip3 install python-firebase
```

```
sudo pip3 install firebase-admin
```

2. Google cloud

```
sudo pip3 install google-cloud
```

```
sudo apt-get install google-cloud-sdk
```

```
gcloud auth application-default login
```

3. Pygame mixer music

```
sudo apt-get install pip
```

```
sudo pip install pygame
```

4. Start the project

```
sudo python3 SmartHome.py
```

5. Extra: troubleshooting (gcloud error)

```
export GCLOUD_PROJECT= smarthome-6b170
```