



# HALLWAY BOT

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*Jonathan Will, Sebastian Bräuer, Antonia Düker | Design Milestone Presentation | Networked Embedded Systems*







# OUTLINE

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- Project Idea
- System Requirements
- Functional Specification
- Hardware Components
- Communication Architecture
- Timeline

# BUILDING GUIDANCE

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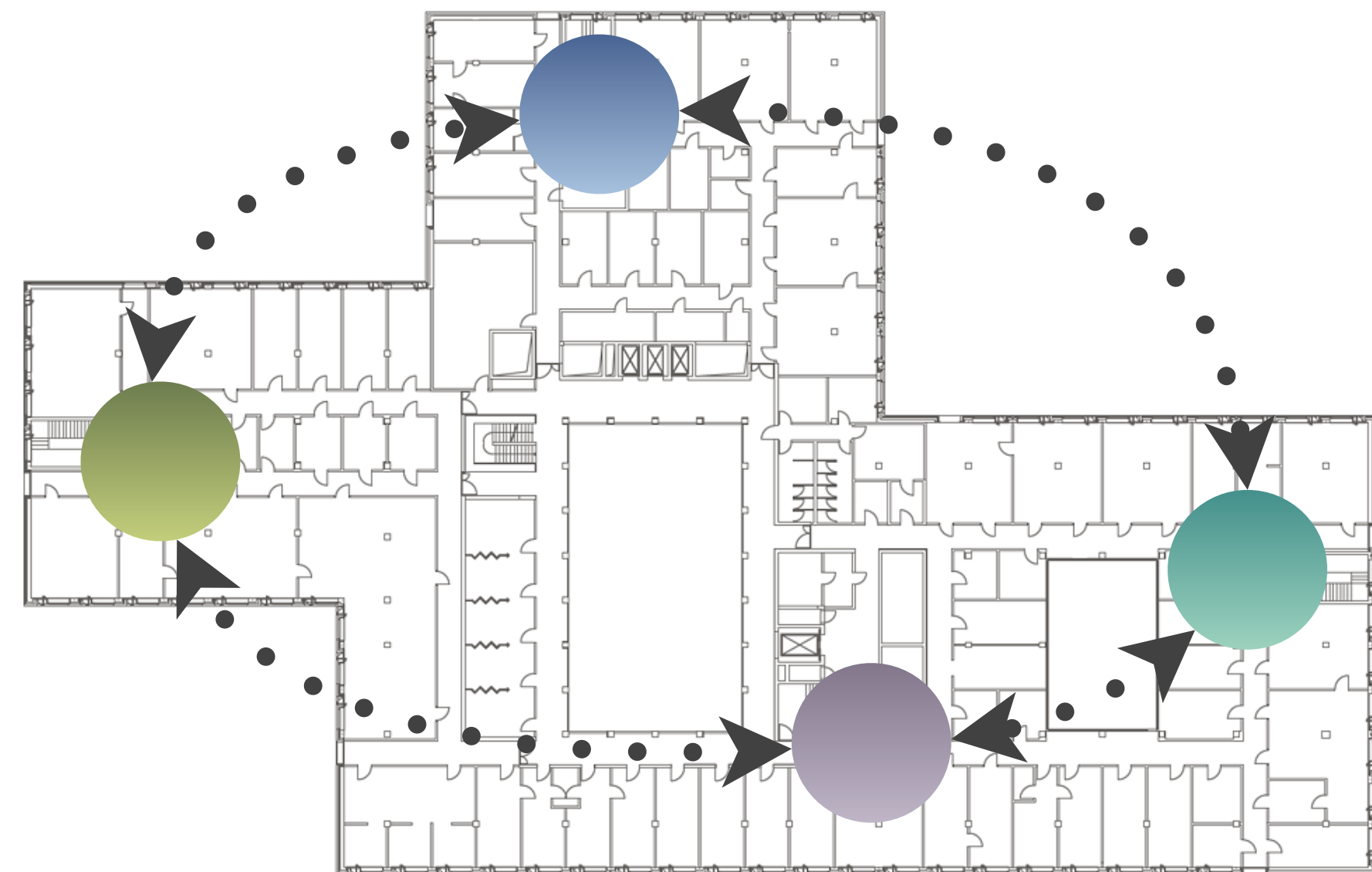
- Connection to one Entry Point
- Blinking the way
- Hand over to next lights

*Lighting guides  
the way*



*Entry Points  
welcomes user*

- Embedded System
- Connection to Internet
- Voice Interface
- Decentral Communication



# SYSTEM REQUIREMENTS

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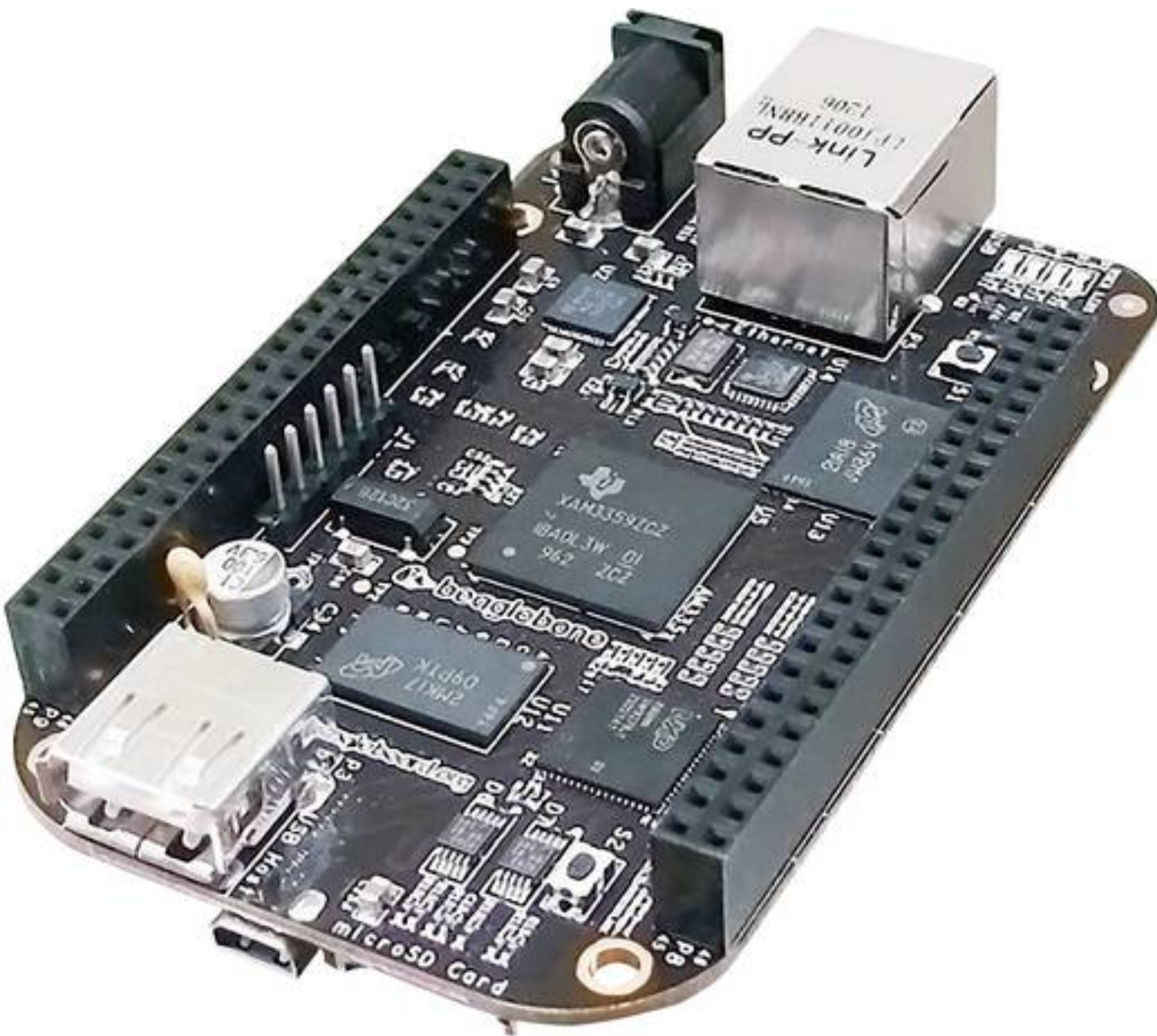
- ❖ The system should guide the user the way to the requested room.
- ❖ There are at least two entry points at one floor.
- ❖ At the entry point a user can call for guidance.
- ❖ The user gets asked where he wants to go.
- ❖ The system shows the user the right way

# FUNCTIONAL SPECIFICATION

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- ❖ Entry Points are connected to a network and connected to each other.
- ❖ At each entry point a voice interface is realized.
- ❖ The system has a wake word.
- ❖ The users intention is analyzed.
- ❖ The best route for the users request is calculated.
- ❖ The lighting for the route is submitted to other affected entry points / control units
- ❖ The lighting is showing the right way.





# HARDWARE COMPONENTS

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- ❖ Entry Points:
  - ❖ Beagle Bone Black
  - ❖ LED Stripes
  - ❖ Microphone
  - ❖ Speaker
- ❖ Nodes:
  - ❖ Beagle Bone Black
  - ❖ BLE Module

# FUNCTIONAL OVERVIEW

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# TIMELINE

<i>Hallwaybot - Timeline</i>		2017											
		MAY				JUNE				JULY			
		W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
<b>Planning phase</b>	<b>2w</b>												
Team Formation	1w												
Brainstorming of Ideas	2w												
Distributing of tasks	1w												
<b>Design phase</b>	<b>4w</b>												
Architecture Design	2w												
Detailed Design	2w												
Documentation	4w												
<b>Implementation phase</b>	<b>4w</b>												
Coding & (Infield-)Testing	3w												
(Further Enhancements)	1w												
Documentation	4w												
<b>Closure Phase</b>	<b>4w</b>												
Demo Preparation	4w												
Report Preparation	3w												
Self Evaluation	1w												
<b>Annotations</b>		<div>1</div> <div>2</div> <div>3</div> <div>4</div>											

- ❖ Jonathan
  - ❖ User Routing
  - ❖ Architecture Design
- ❖ Sebastian
  - ❖ BLE / User Authentication
  - ❖ Node Communication
- ❖ Antonia
  - ❖ Alexa
  - ❖ LED control



