



Battleships

Praktikum: Sichere Softwareentwicklung für Mikrocontroller (in vernetzten Energiesystemen)

Stefan Gapp, Steffen Gufler, Joachim Müssig





- Well-known Battleships pen and paper game
- For 2 players
- Microcontrollers communicate over LAN
- State-based game
- Ships:
 - 1 of length 5
 - 1 of length 4
 - 2 of length 3
 - 1 of length 2



Game States



Gameboard





```
#[derive(Debug, Copy, Clone)]
pub struct ShootPacket {
    pub line: u8,
    pub column: u8,
}
```

```
#[derive(Debug, Copy, Clone)]
pub struct FeedbackPacket {
    pub hit: bool,
    pub sunk: u8,
    pub you_win: bool,
}
```

```
#[derive(Debug, Copy, Clone)]
pub struct WhoamiPacket {
    pub is_server: bool,
}
```

```
pub trait Serializable {
    fn serialize(&self) -> Vec<u8>;
    fn deserialize(input: &[u8]) -> Self;
    fn len() -> usize;
}
```



Demo



The End



Thank you for your attention!

