OOP-Project
Maze Router with Lee Algorithm

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Simply speaking, its task is to find the shortest route between two points in a maze.
Where is the Lee Algorithm used in EE field?

- **Printed Circuit Board (PCB) Design**

- **VLSI (Very Large Scale Integrated-circuit) Design**
How the Lee Algorithm works?

1. **Represent the routing layer with grid**

![Layer 1 grid](image)

2. **Perform a breadth first search from source to target, label searched grid with its distance from the source**

![Expansion phase](image)

3. **Form the connection by following any path with decreasing distance**

4. **Block the path for further wiring**

![Traceback distance = 2](image)
The Project

- **Goal:** create an interactive maze router with the Lee algorithm
  - User should be able to define the area and design the pre-existing obstacles at beginning
  - The route between two arbitrary points in the maze should be calculated by the Lee algorithm automatically
  - Each step of the solution needs be visualized clearly

- **Development environment:** Linux

- **Development Tools:**
  - QT, [http://trolltech.com](http://trolltech.com)
  - ...
What you will learn

- **Object Oriented Programming with C++**
  - A C++ application written in C style design will not justify the goal

- **Team work in SW development**
  - System analysis, interface definition
  - Module design, task separation
  - Common coding style
  - Document management
  - Source code management

- **Software development in Linux**
  - Compilation
  - Linking
  - Debugging
Further Info.

- **C++**
  - Thinking in C++ 2nd Edition by Bruce Eckel, Volume 1 & 2
    [http://www.mindview.net/Books/TICPP/ThinkingInCPP2e.html](http://www.mindview.net/Books/TICPP/ThinkingInCPP2e.html)

- **Lee Algorithm**