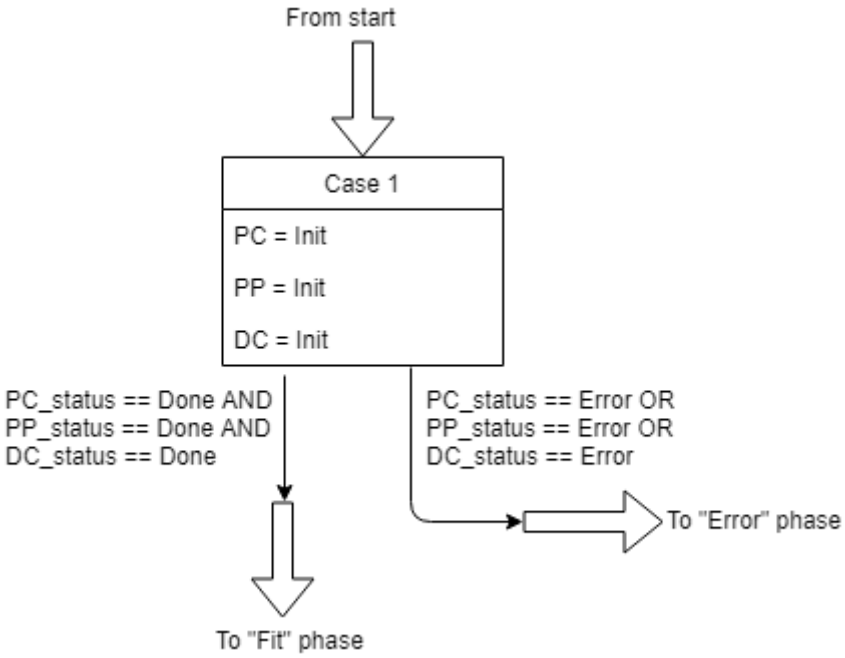
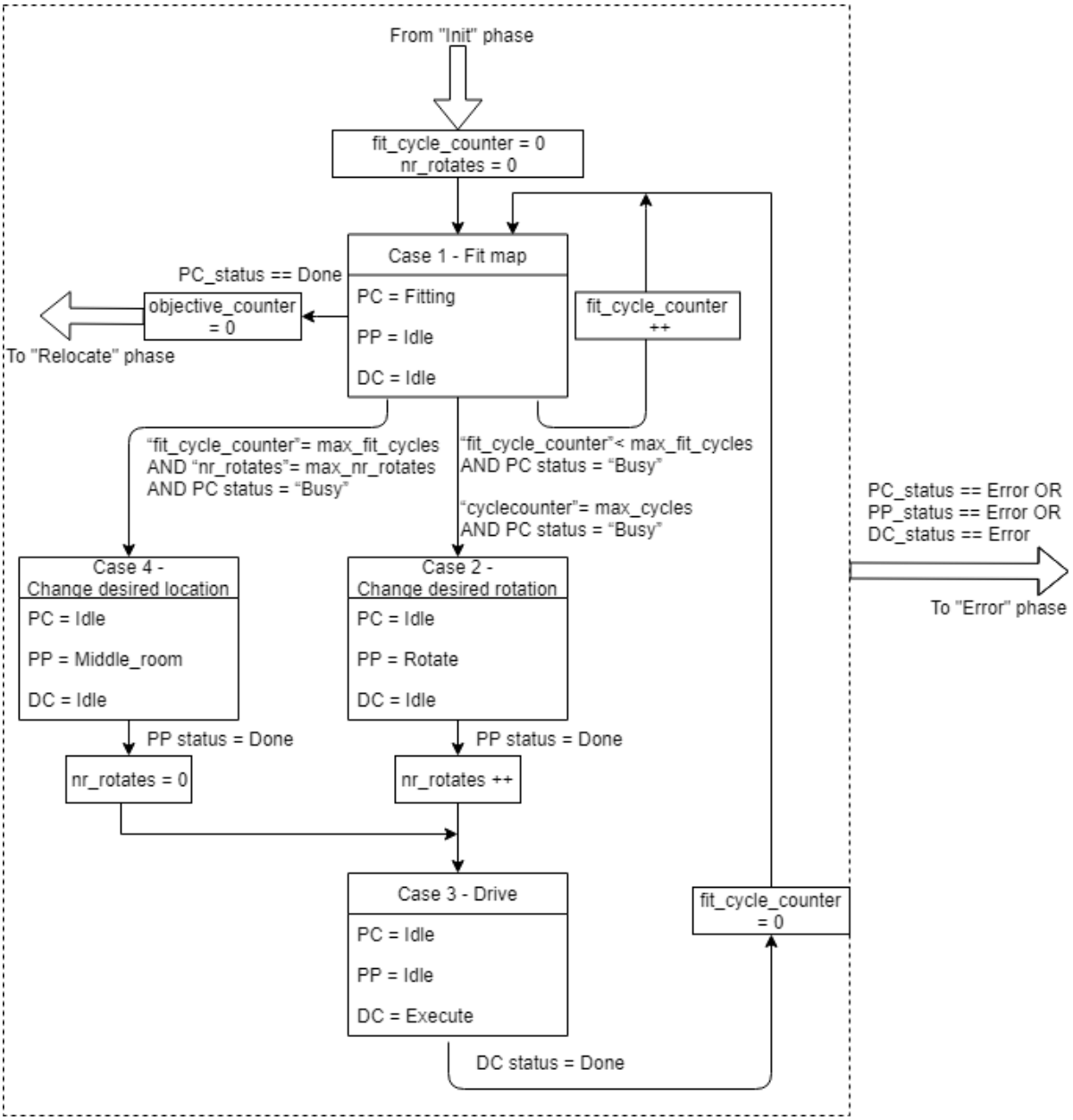
All the phases are split in several steps. Those steps are called cases and each case has a specific action to perform. In this document the flowchart of each phase is shown, together with an explanation of the steps.

## Init phase



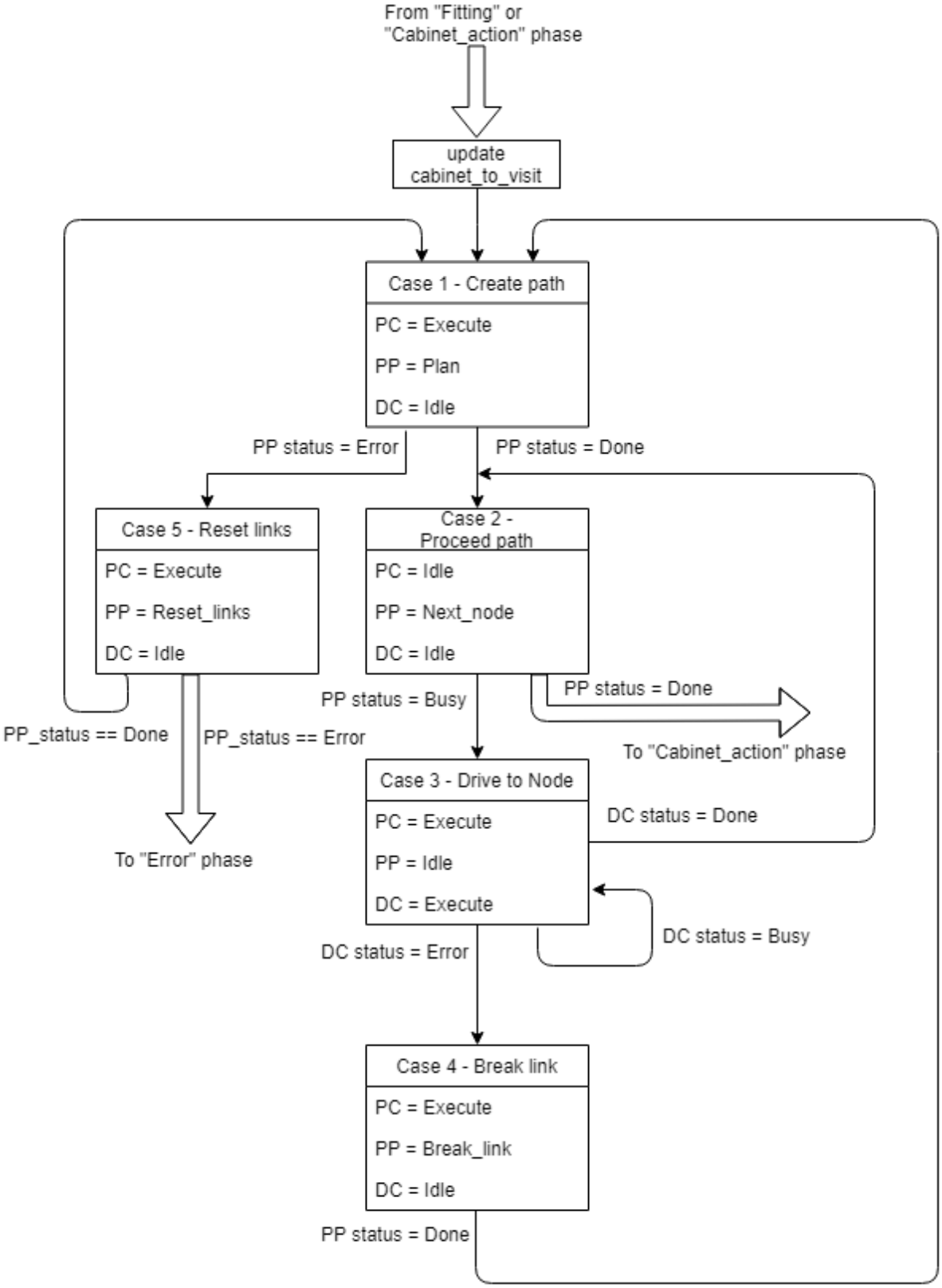

| Block | Actions |
|---|---|
| Taks manager | - Init blockmodes of init values for all blocks<br>- Set blockstatusses to init values for all blocks<br>- Read and store high level tasks<br>- Read taskplanner behavior from file and store |
| Perceptor | - Read Json file and create map<br>- Generate global map<br>- Set zero coordinates<br>- Create cabinets |
| Path planner | - Create nodes (around doors, middle of the room, in front of cabinets)<br>- Link nodes |
| Drive controller | - Init PID controllers |

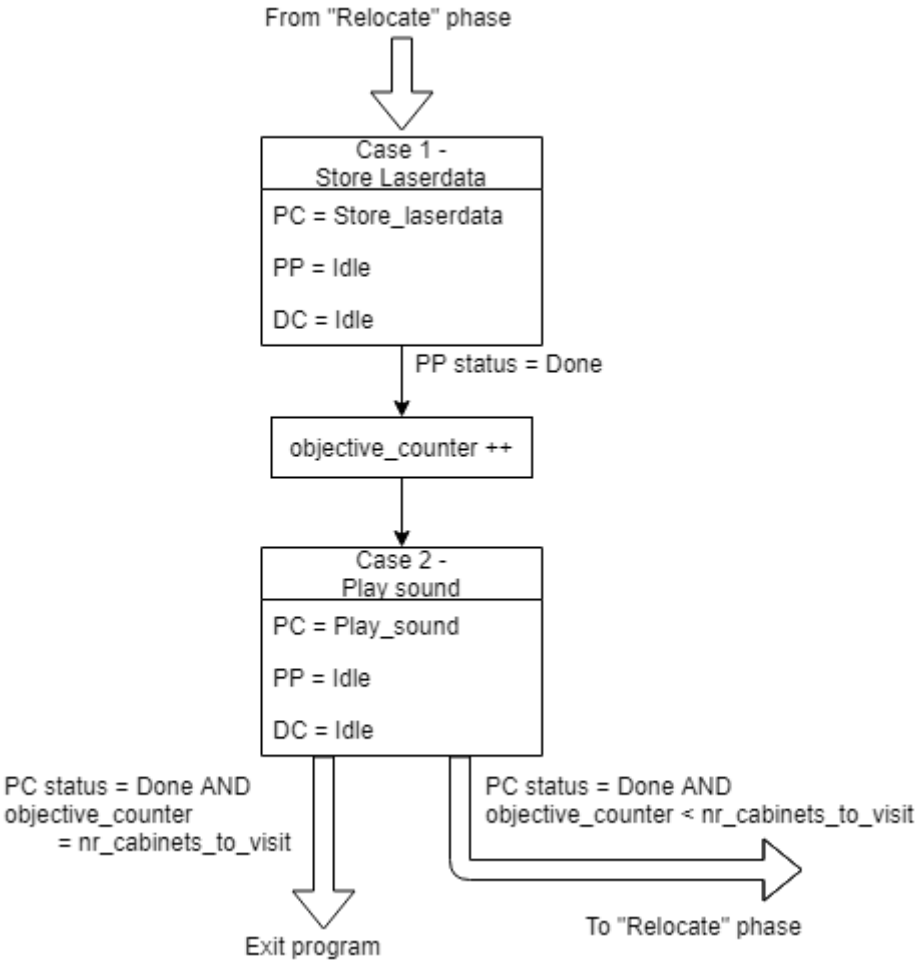
## Fitting phase




| Case | Actions |
|---|---|
| Case 1 - Fit | - Obtain laser data<br>- Create local map<br>- Try to fit local map onto global map |
| Case 2 - Change desired location | - set new desired orientation to (current orientation + predefined angle) |
| Case 3 - Drive | - drive robot to new desired location/orientation |
| Case 4 - Change desired location | - Set new desired location to the middle of the room |

## Relocate phase



| Case | Actions |
| --- | --- |
| Case 1 - Create path | Calculate path from current position to the desired cabinet along predefined nodes (points)<br>The calculated path consists of a list of nodes that have to be visited in the defined order |
| Case 2 - Proceed path | Get next node from path and set it as desired position |
| Case 3 - Drive to node | Drive robot to desired location by actuating the drivetrain of the robot |
| Case 4 - Break link | Break link between last and next node.<br>Since the drivecontroller was unable to reach the desired node from the last node it is assumed to be blocked.<br>This can be caused by a closed door or a static/dynamic object between the two nodes.<br>In both cases when the path planner calculates a new path it is not desired to plan a path between those two nodes, therefore the link is removed |
| Case 5 - Reset links | No path is found, while it should be possible.<br>This can be caused by the fact that some links between nodes are removed because it was not possible to drive from one to another.<br>In case it was blocked by a dynamic object a path is possible after resetting all links<br>if no links are reset, exit the program because recalculating a path doesn't make sense at this point |

## Cabinet action phase