# Progress Report of WP2

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## Review

### Pick and Place

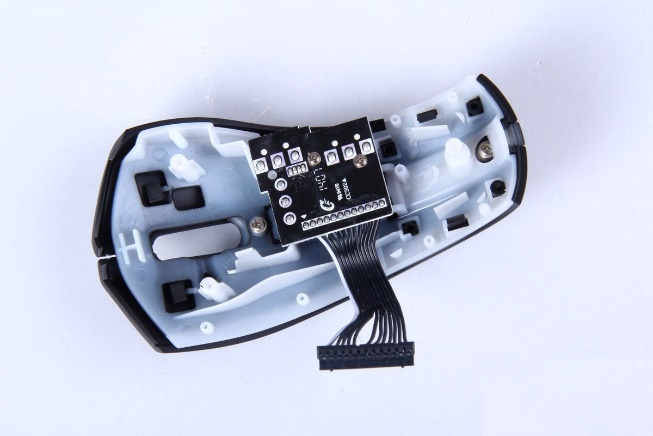
### Screw Driving

From our conclusion in the previous report, the screw driving process requires position control in x and y direction and force and torque control in z. To demonstrate, we choose the Rapoo V90 mouse, Fig 1 is the top and bottom view of V90.

Fig . Top view and bottom view of Rapoo V90 mouse



Fig 2. Inside the Rapoo V90 mouse



In Fig 1 and Fig 2, inside the red circle are the screws used. There are a total of 9 screws inside for V90. Assuming we are trying to robotize the process of assembly process of Rapoo V90, and here we only take into the screw driving part, the first thing we need to do is to establish the requirements. Before that, we have conducted experiments studying the requirements of precision, as in Fig 3, where we can control the orientation and position of the screw driver. According to our experiments, the



Fig Our experiment setup

Table Some of the results of the experiments

|  |  |  |  |
| --- | --- | --- | --- |
| No. | displacement | angle | failure/trial |
| 1 | 0 | 90 | 0/20 |
| 2 | 0 | 85 | 0/20 |
| 3 | 0 | 95 | 0/20 |
| 4 | 左偏（大） | 90 | 5/5 |
| 5 | 左偏（大） | 85 | 5/5 |
| 6 | 左偏（中） | 90 | 13/15 |
| 7 | 左偏（中） | 84 | 5/5 |
| 8 | 左偏（小） | 90 | 12/20 |
| 9 | 左偏（小） | 85 | 5/5 |
| 10 | 右偏（小） | 90 | 14/20 |
| 11 | 右偏（小） | 95 | 6/6 |
| 12 | 右偏（中） | 90 | 18/20 |
| 13 | 右偏（中） | 95 | 5/5 |

### Gluing

## Robot configuration

## Database

## Conclusion