CEPC MOST2 prototype assembly

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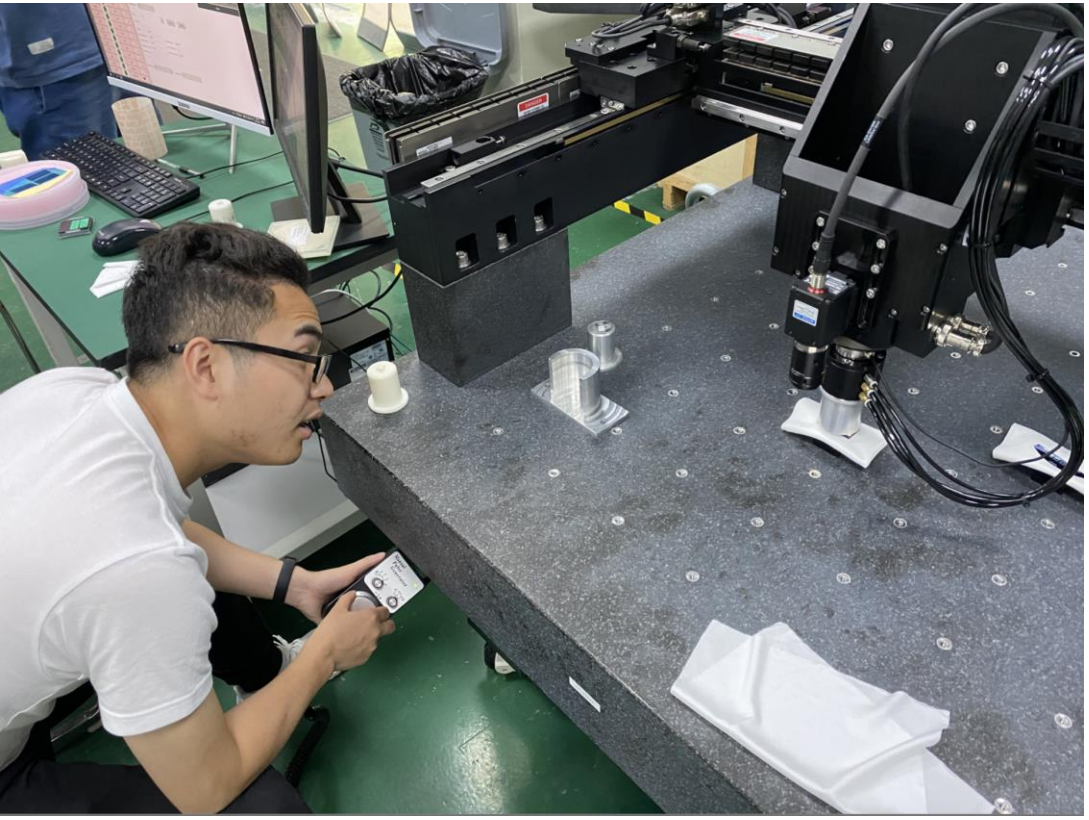
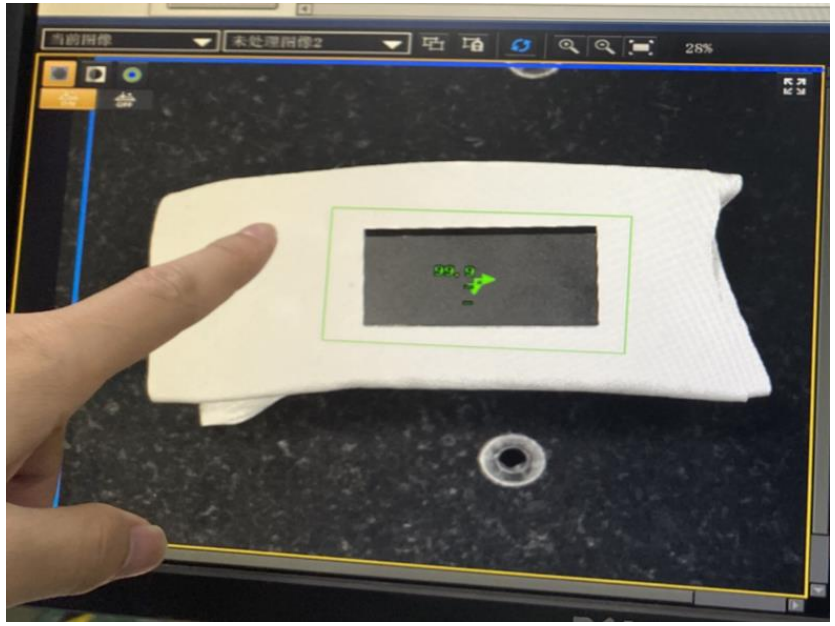
Gantry for vertex detector prototype assembly

- **3~5um good position resolution require high assembly precision**
- **Cooperate with domestic company on R & D Gantry automatic module assembly.**
  - **Pattern recognition with high resolution camera**
  - **Automatic chip pick-up and positioning**
  - **Automatic Glue dispending**

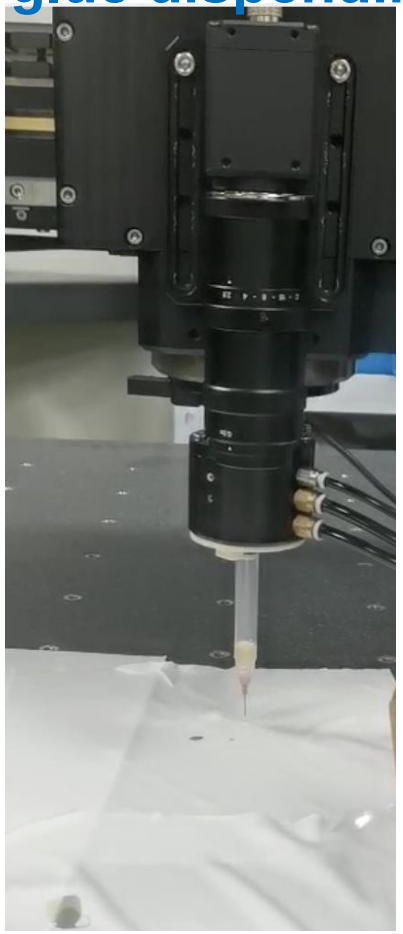
Gantry system



Pattern recognition

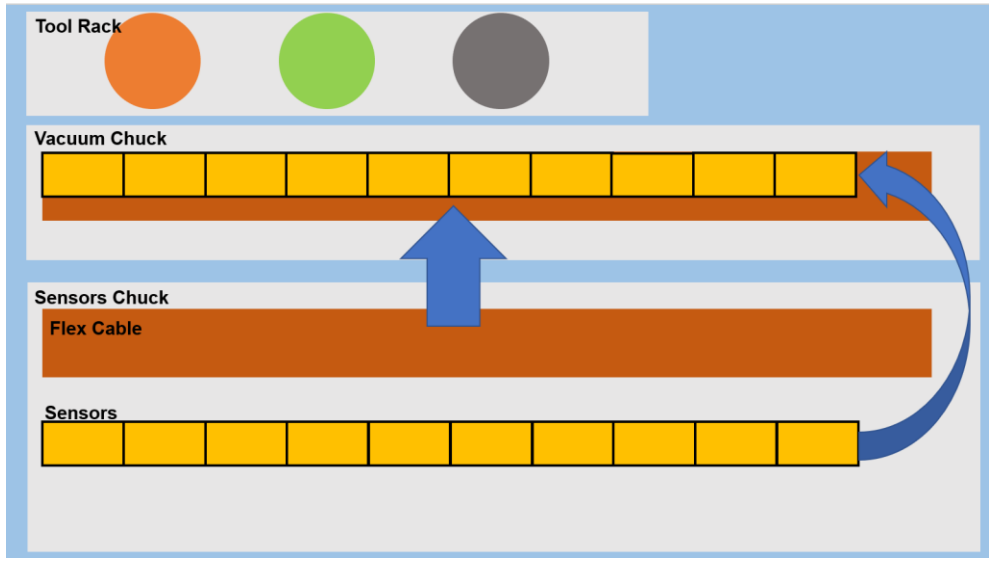


automatic glue dispending

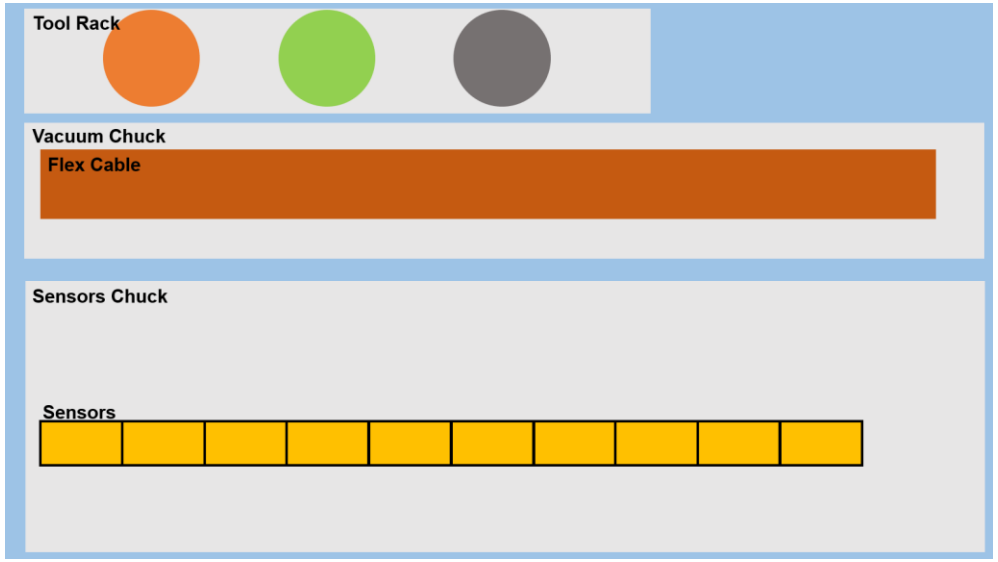


Procedure for Module Assembly①

Gantry table

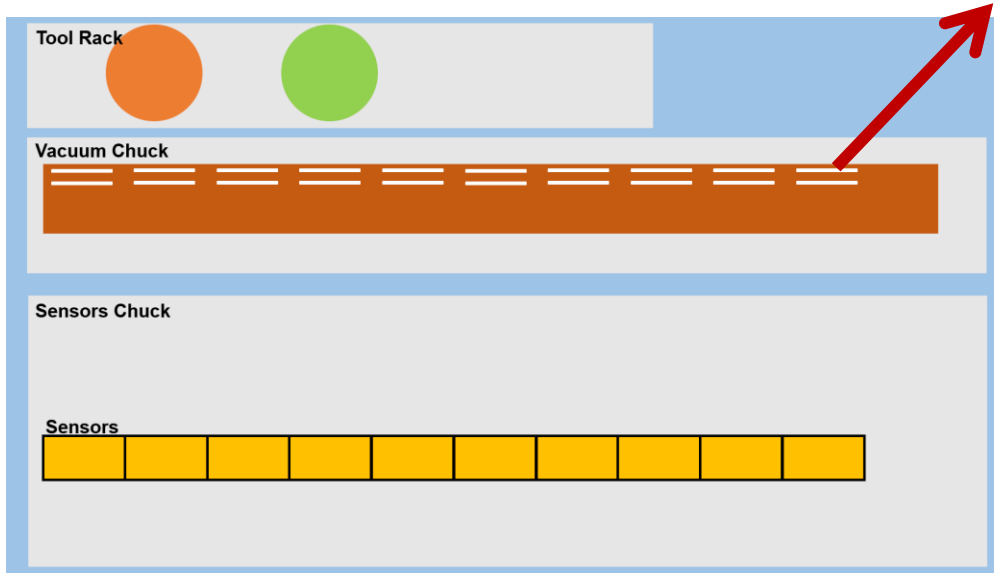


Prepare the tools, flex and sensors and put the flex on the vacuum chuck

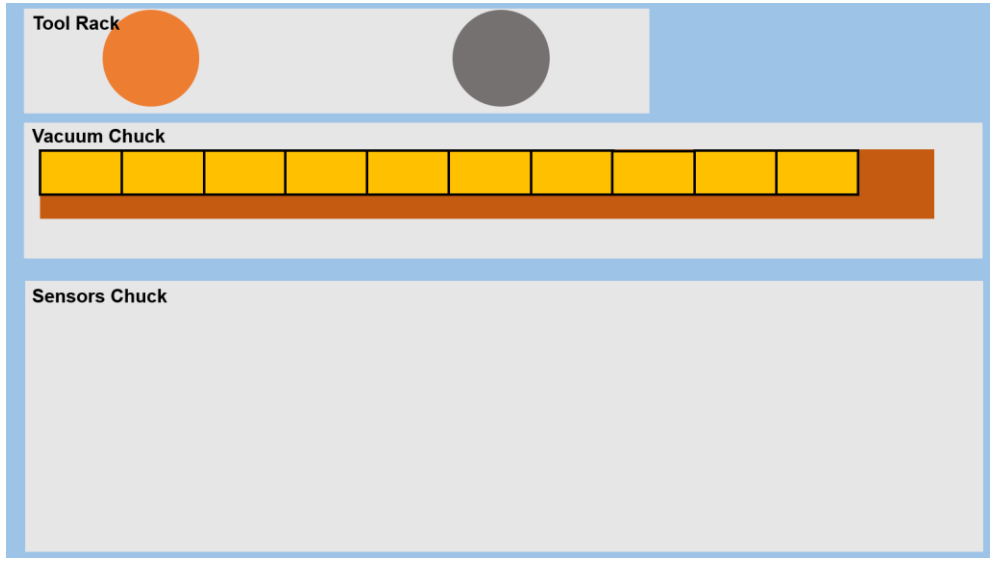


Dispensing glue on the flex

Glue pattern

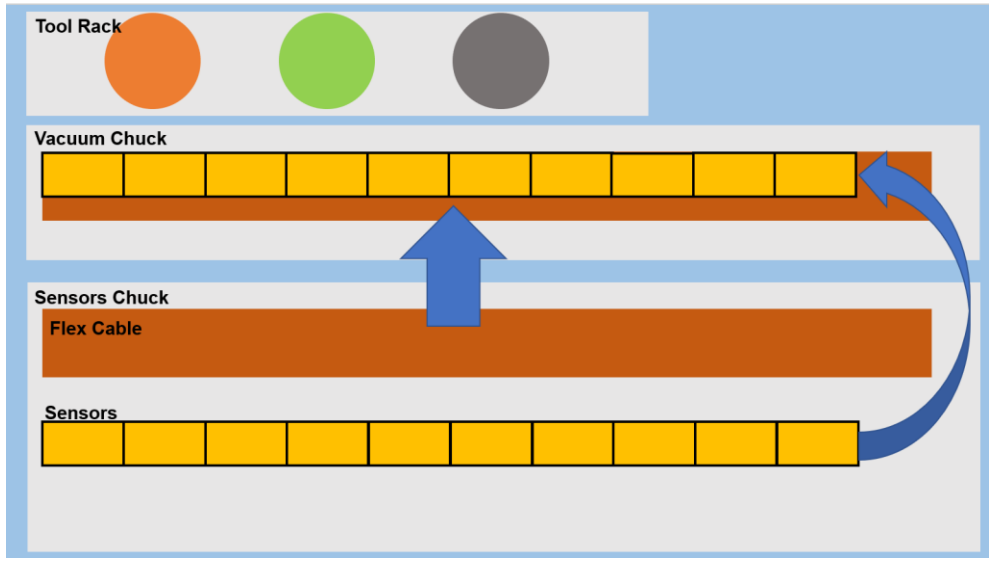


Pick the sensors and place on the flex

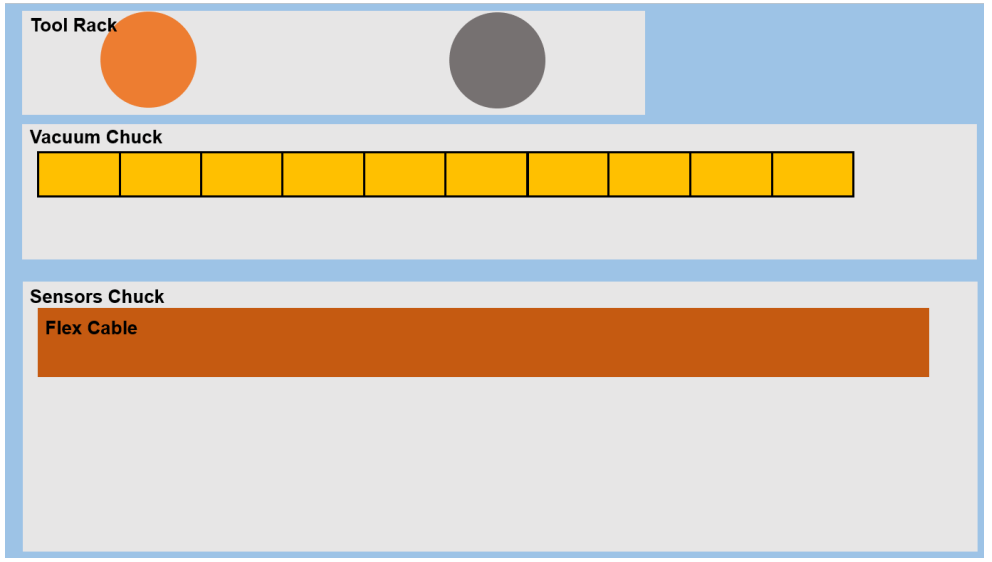


Procedure for Module Assembly②

Gantry table

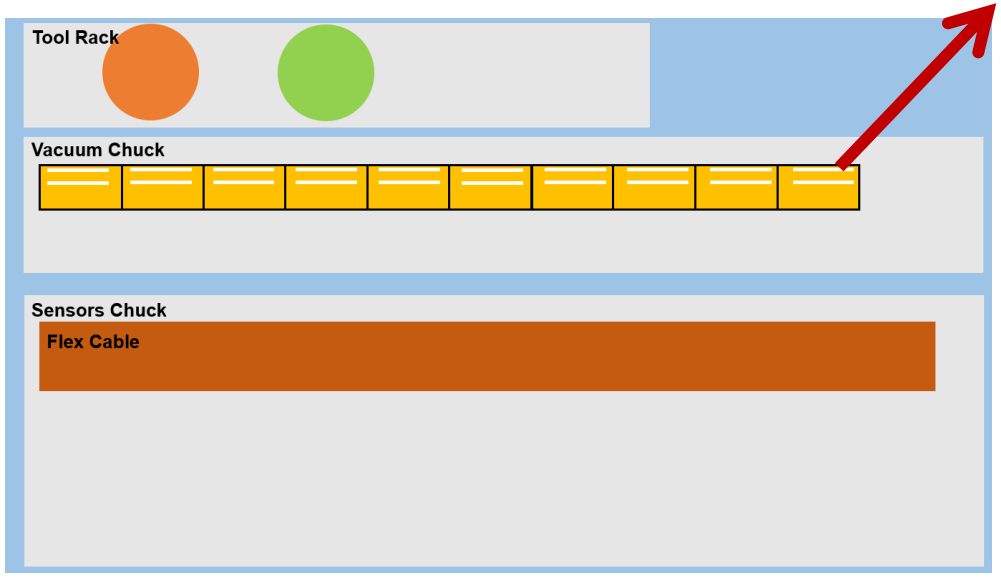


Prepare the tools, flex and sensors and put the sensors on the vacuum chuck

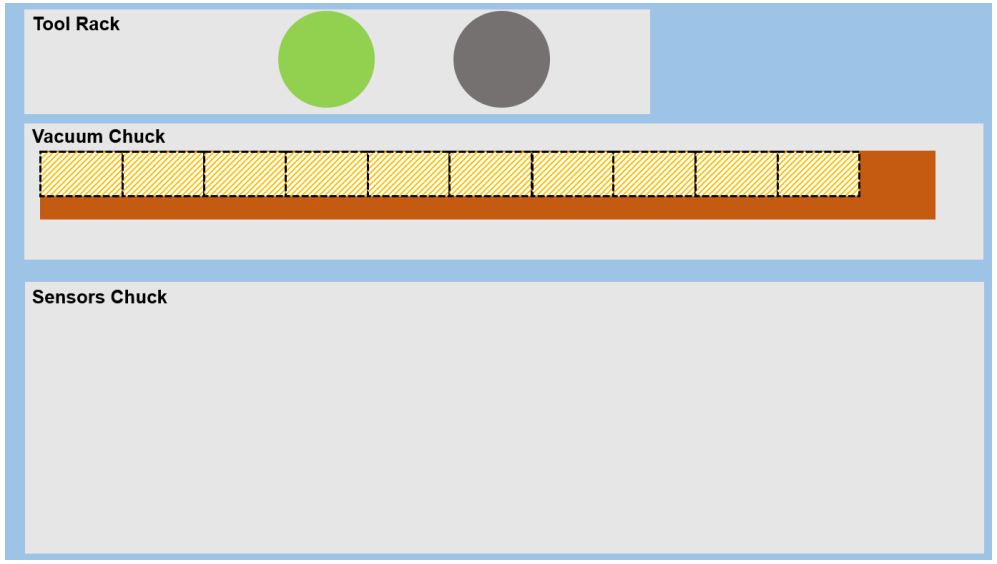


Dispensing glue on the sensors

Glue pattern



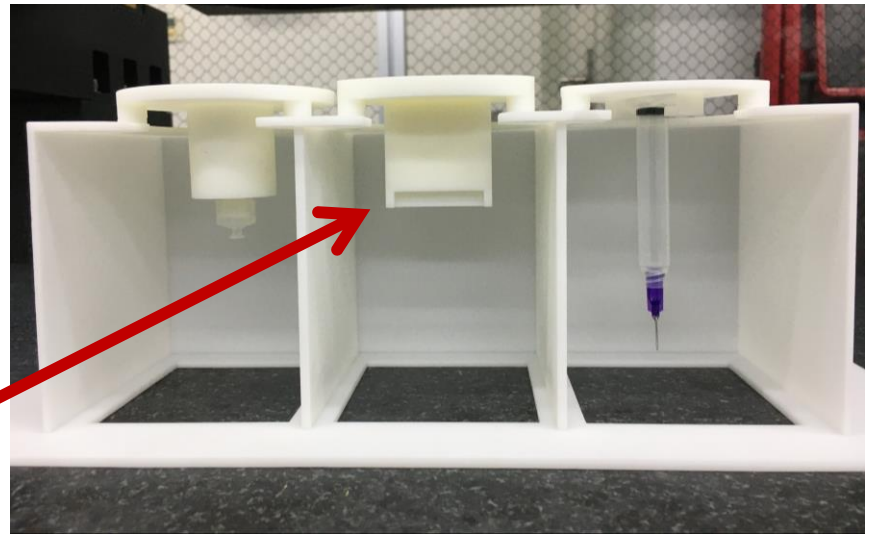
Pick the flex and place on the sensors



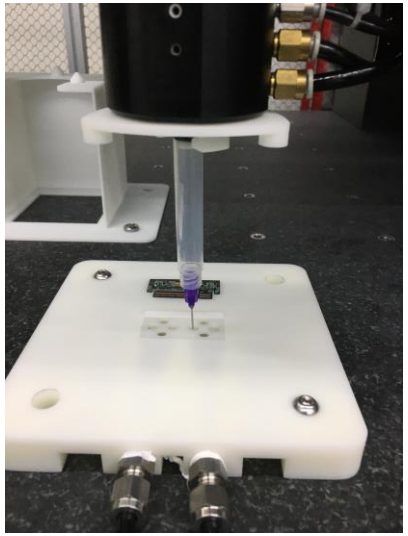
Procedure for Module Assembly

- Prepare the tools, flex and sensors
- Calibration
  - Position calibration (tools)
  - Camera calibration
- Pattern recognition
  - Recognize the position of the flex and sensors on the gantry system by camera.
- Gluing & Assembly
  - After gluing, suck up the flex and place it on the sensors.
  - Put the tools for picking up the flex on the submodule and wait until the glue is dry (Need multiple tools for assembly).

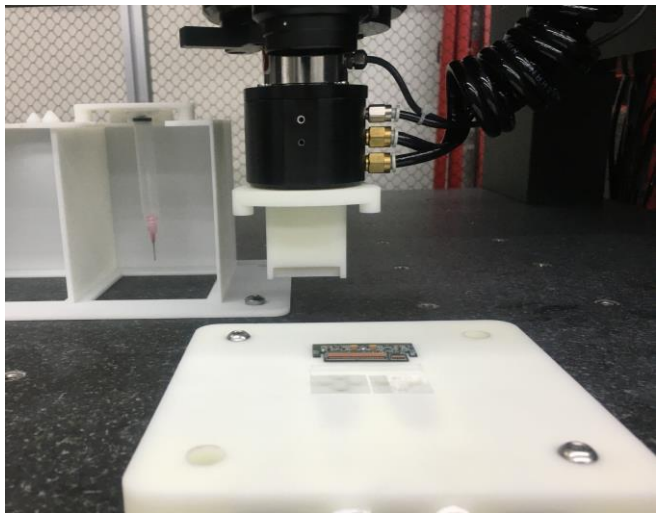
Tools for module assembly

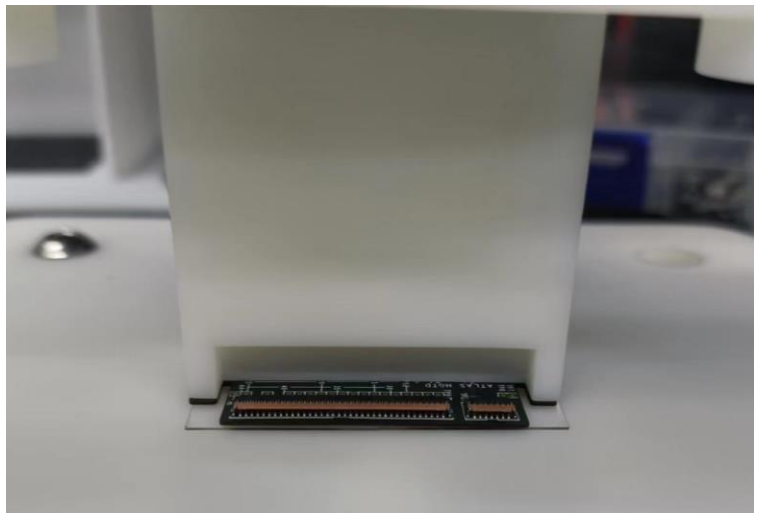


Gluing



Keep pressing until the glue is dry





- Wire bond the sensors to the flex on the front side.
- Glue the flex on both sides of the support unit.
  - ① Glue the flex on one side of the support unit.
  - ② Turn over the support unit and glue the other flex on the other side of the support unit