INTRODUCTION
CONTEXT: Many digital pens in the market but none of them have more than one colour.
BRIEF: Design a multi-colour digital pen to be used by architects and constructors.

PROJECT DESCRIPTION
- Four colours in the same body
- Usable by both right and left-handed people
- Bluetooth or wi-fi
- Paper and tablet
- Eraser
- Connect analogic data (paper) with the computer (digital)

PROTOTYPES
- Wooden prototype made to test the ergonomics
- 3D printed prototype scale 2:1 with mechanism
- Electronic boards

CONCLUSION
The mechanism was the biggest challenge. The pen needed to be simple for the user. Our digital pen is a good first draft. It needs more improvements and more developments:
- Size reduction
- More ergonomic and more stylish
- Miniaturisation and adaptation of circuits

PROJECT TIMELINE
State of the art → Market Study → Reverse Engineering → Sketches → Final concept chosen → 3D Drawings Prototypes

DESIGN
The pen is 180 mm long and 25 mm wide in its largest part.
- It has 4 colours (blue, green, red, black) and a tablet stylus.
- The eraser is the pink part and the erasing mode is triggered by pushing a button.
- There is a LED to indicate the state of the pen.

CONCEPT DESCRIPTION
Electronics
A system to recognise which colour is selected is implemented in the upper part of the pen in order to have the colour digitally on the computer.
The concept uses Bluetooth.
- There will be 3 boards in the pen:
  - Main board to monitor everything
  - Board for the camera
  - Board for the pressure sensor

MECHANISM
The mechanism that the group chose to proceed with was influenced by a revolver barrel. The process of getting out the cartridge is based on a two-step operation. The first step is to rotate a wheel until the desired colour is in line with an indicator. The second step is to pull down a tab and thus extend the selected cartridge.

ERGONOMICS
Shape adequate for large hands but uncomfortable for small hands. Camera housing can interfere, blocking fingers.

STORYBOARD
The multicolour digital pen