Xilinx FPGA, TI DSP·MCU
기반의 회로 설계 및 임베디드 전문가 과정

Battleship

선장 : 최준호

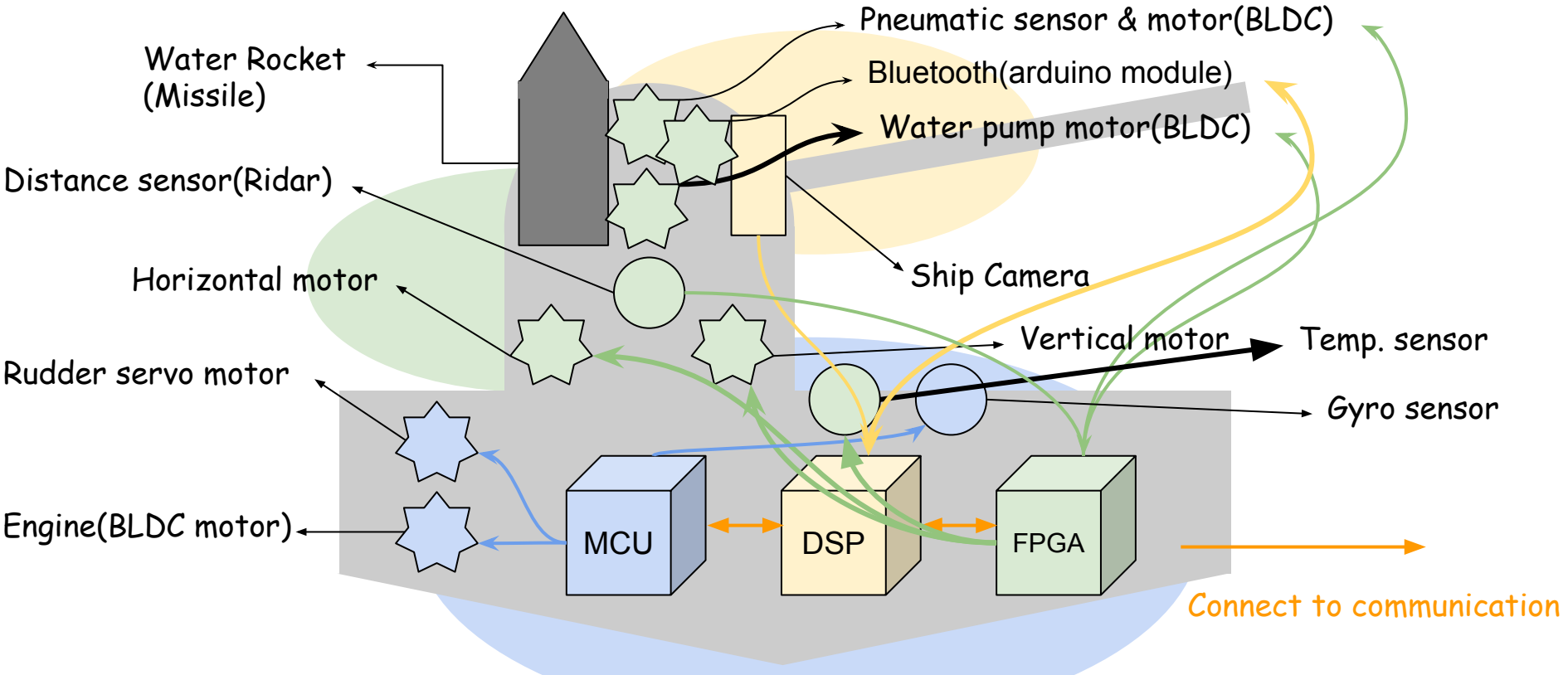
선원 : 강동혁
김현수
김형준
변진혁
봉선우

Project Members

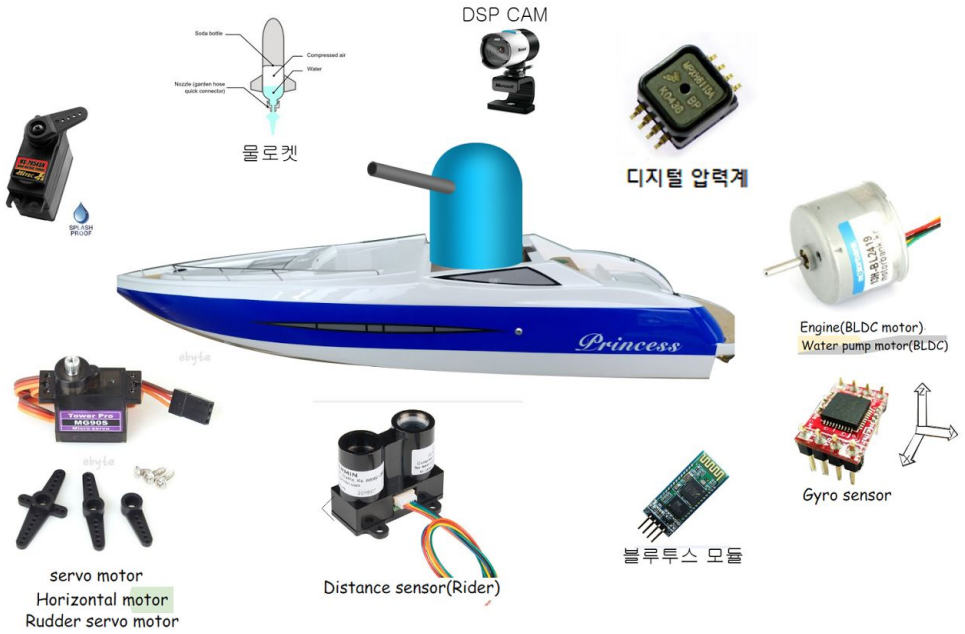
Cameo

Special thanks

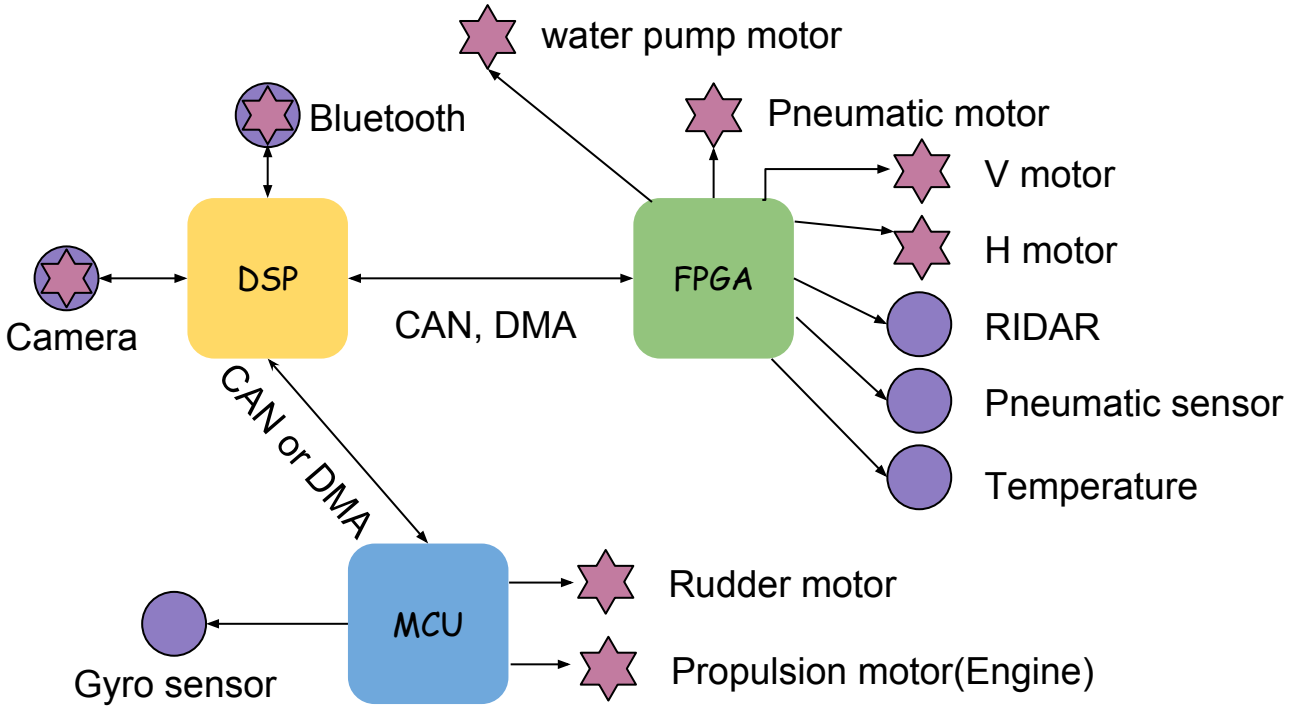
Project Design Overview



Project Design Overview

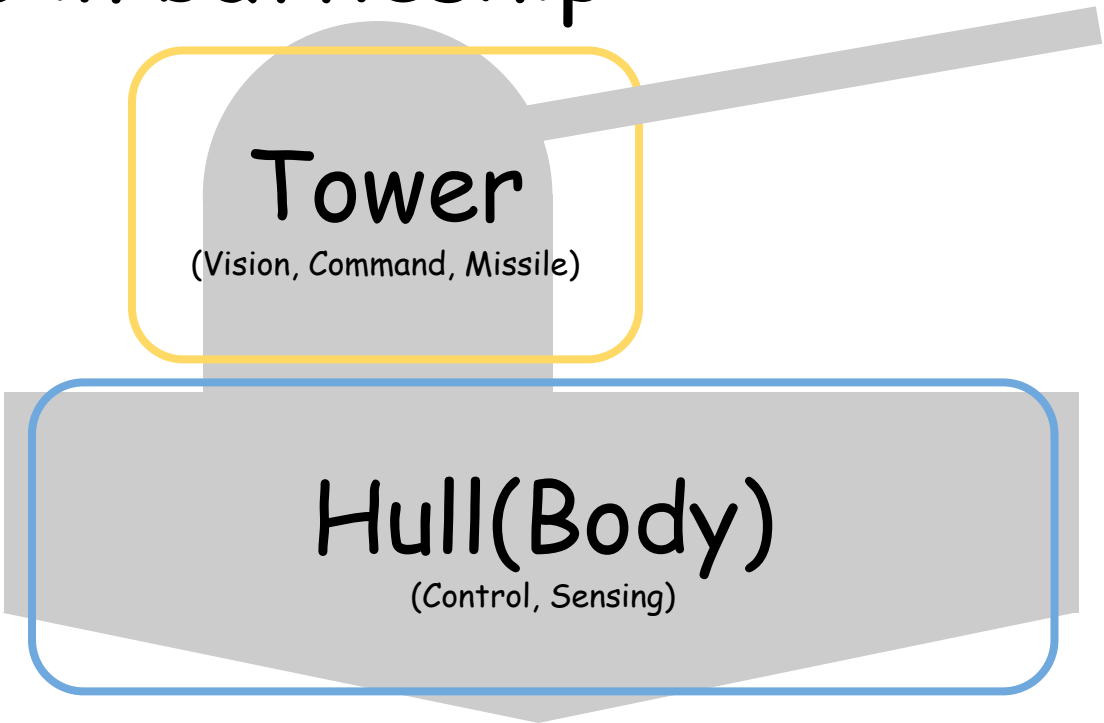


Whole Design Diagram



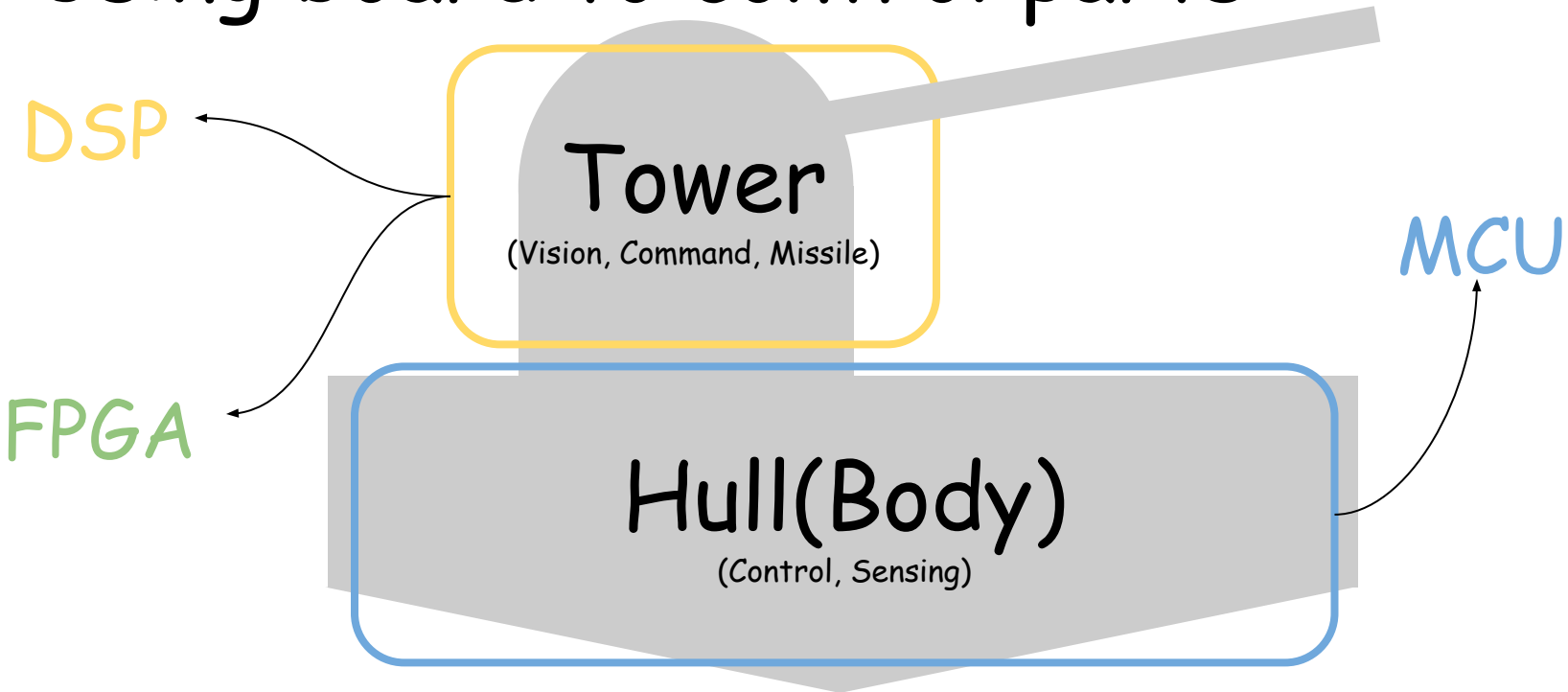
Modules(Parts)

- 2 Parts in battleship



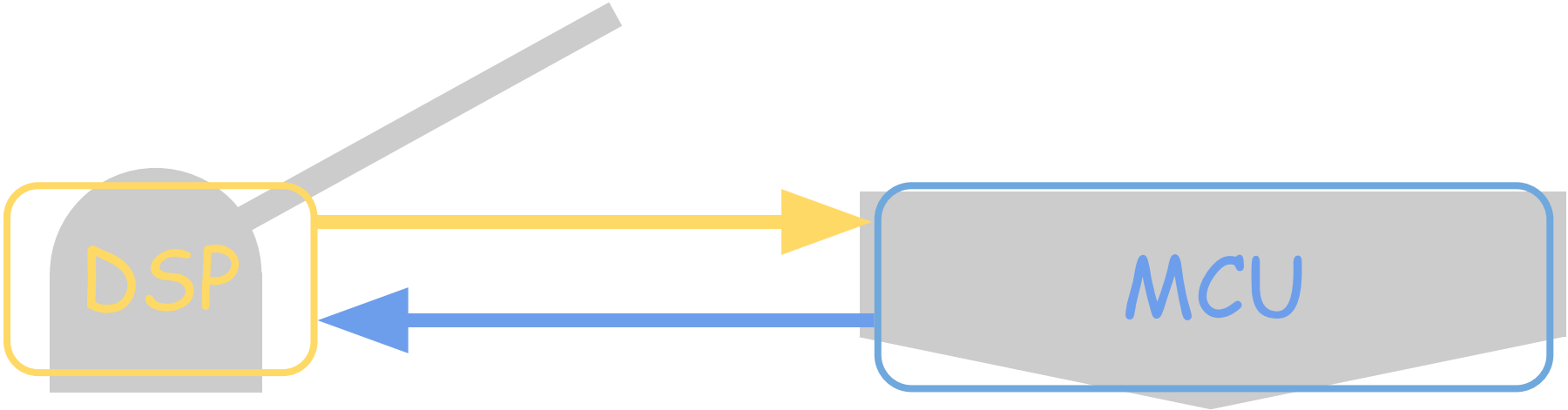
Modules(Parts)

- Using board to control parts



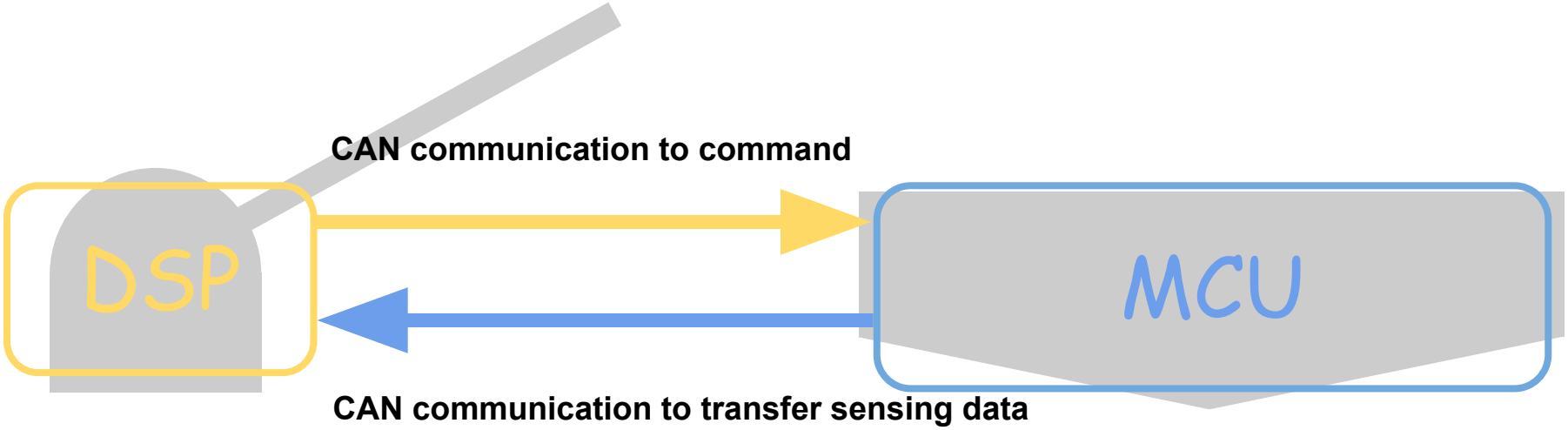
Communication

- communication between modules
  DSP to MCU



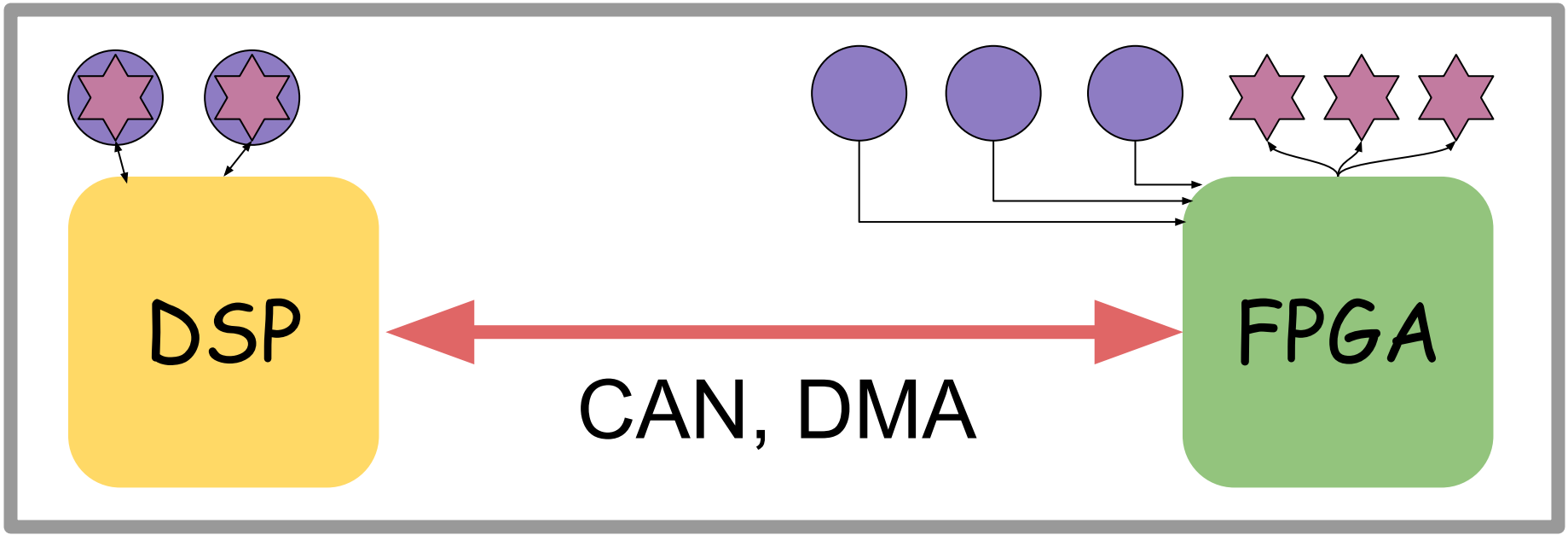
Communication

- It's communication to command and to report sensing data

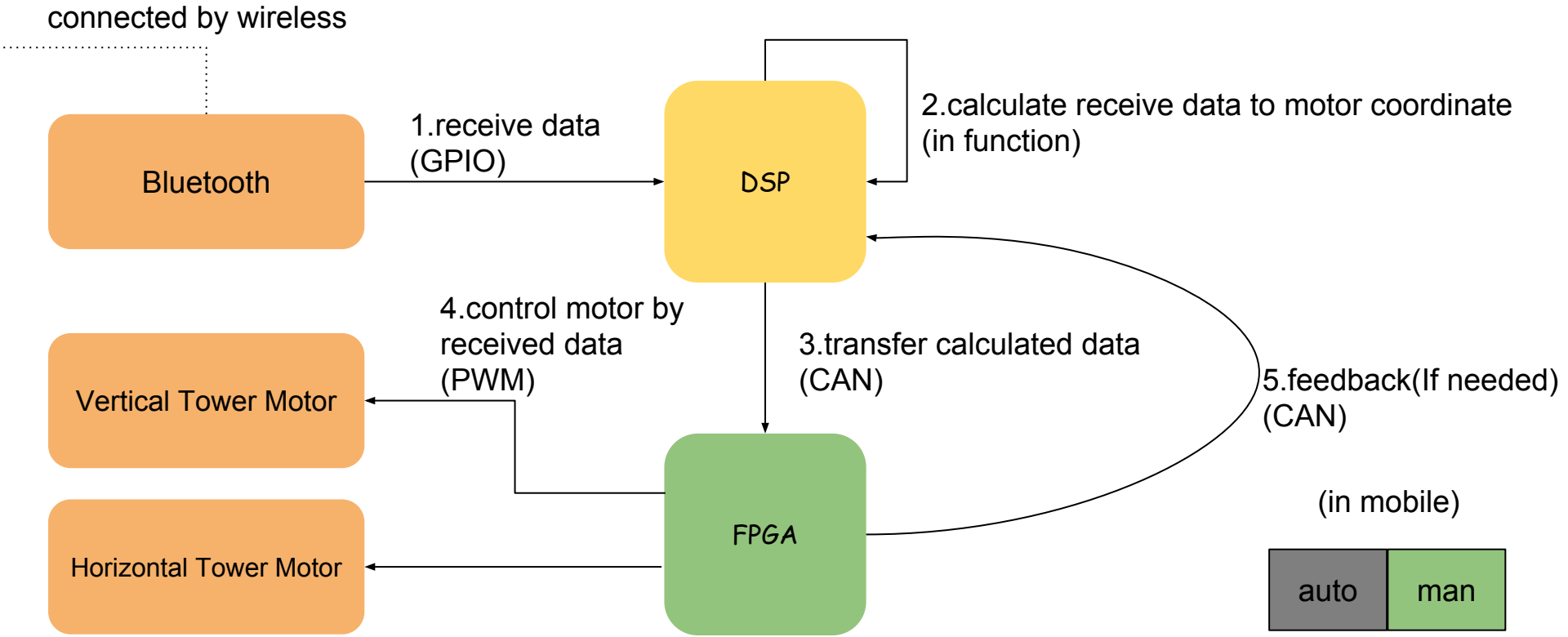


Communication

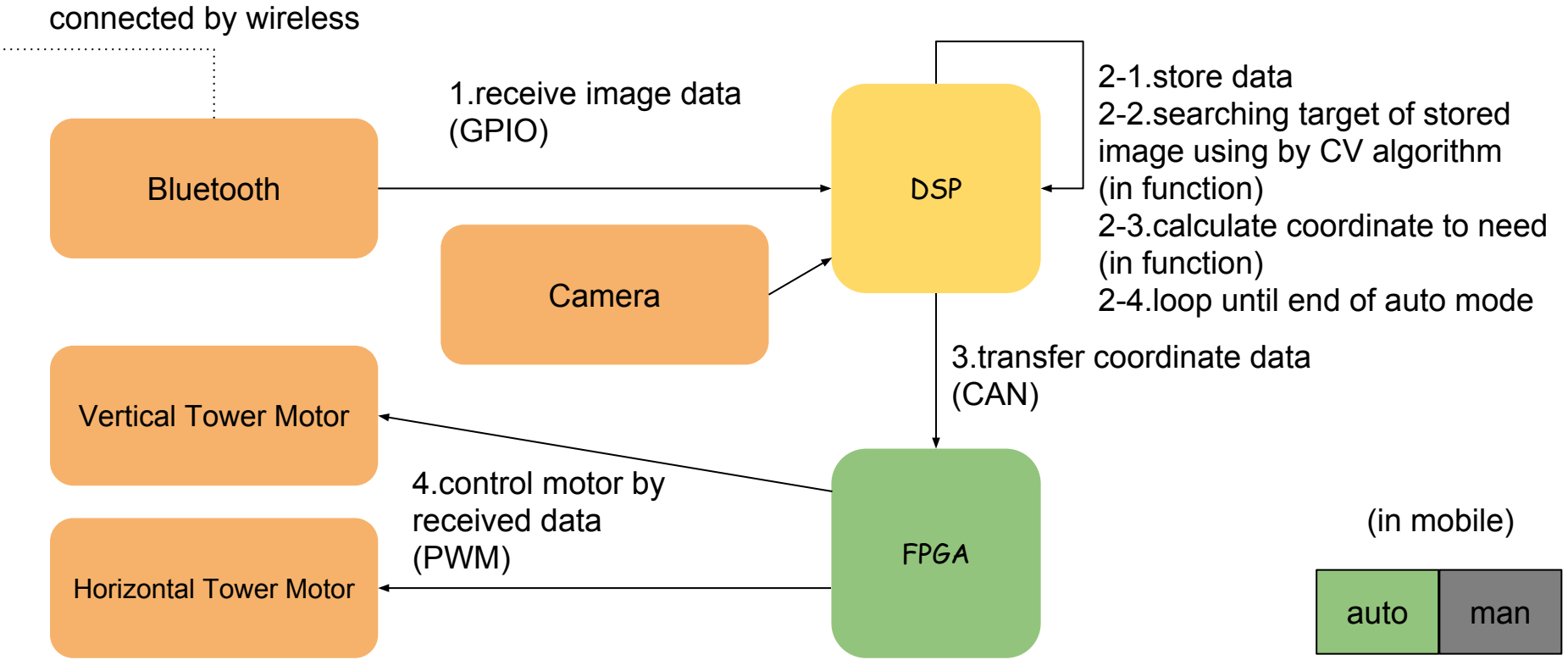
- Inside communication in Tower



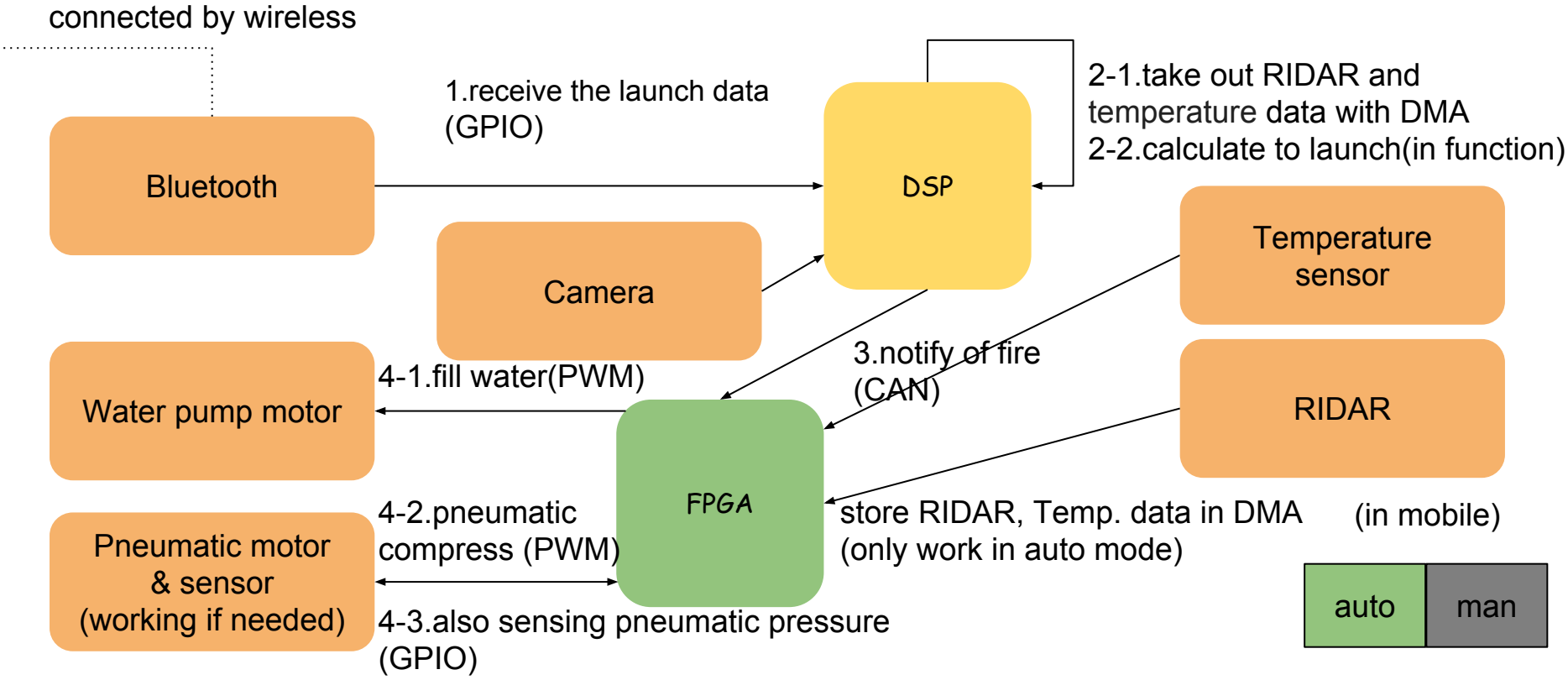
Manually Tower Control Flow



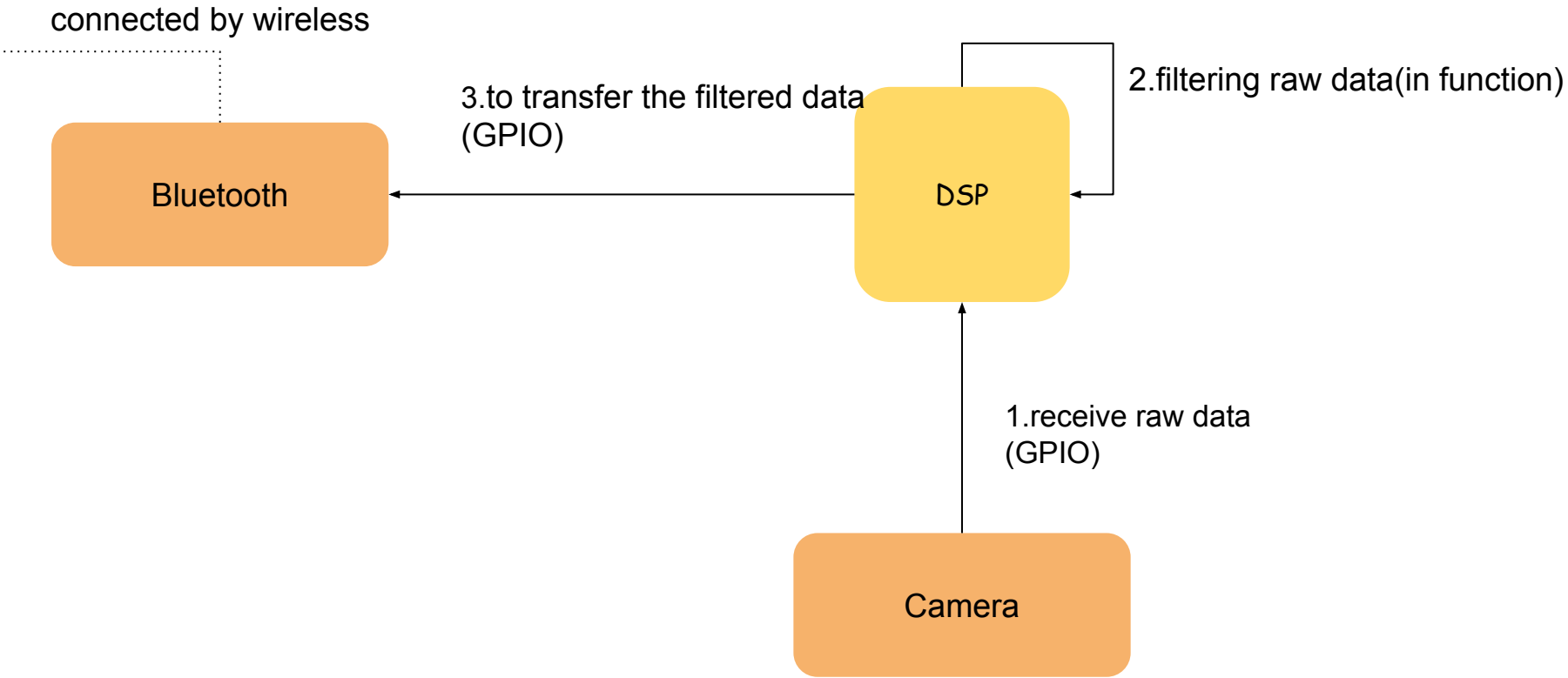
Automatic Tower Control Flow



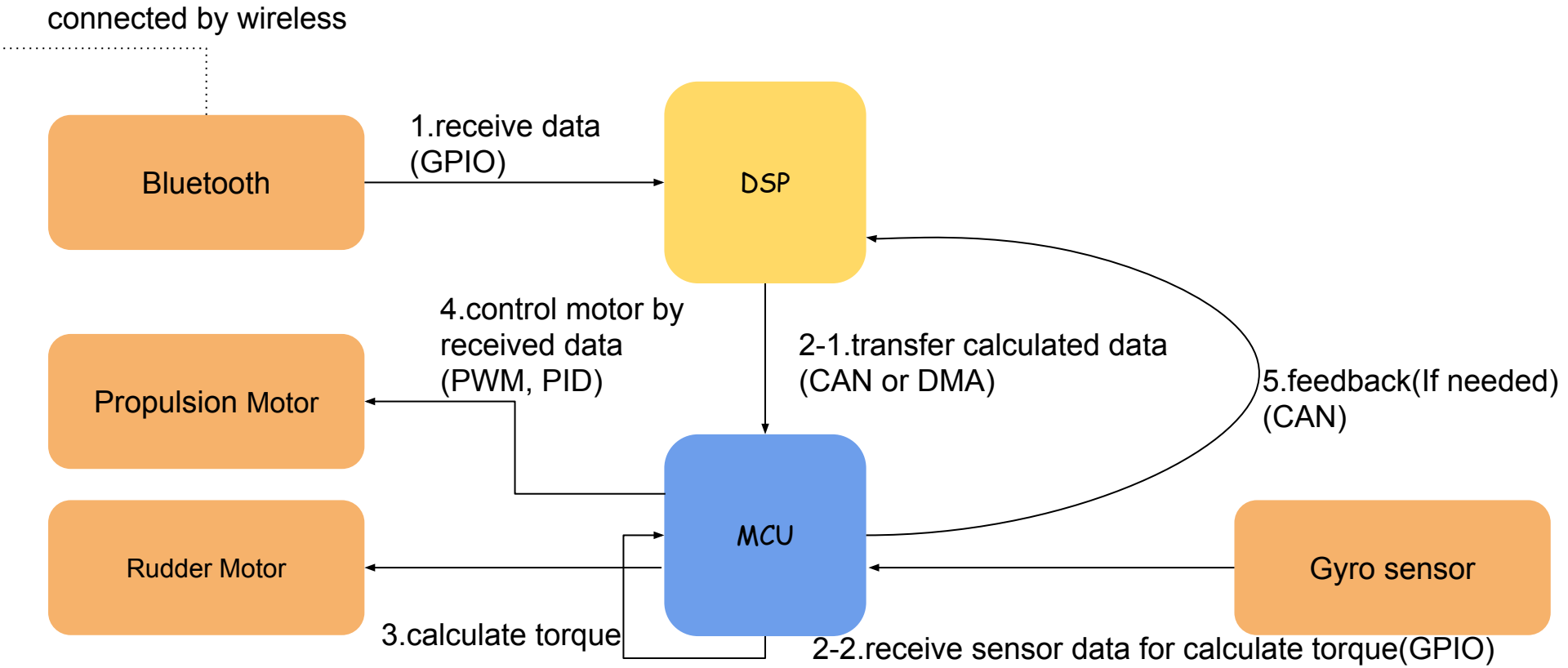
Water Rocket Launch Control Flow



Video Transfer to Mobile Flow



Manually Tower Control Flow



Role

강동혁(DSP)
1. 선박 포탑의 물체 인식&처리(Open CV, V4L)

Role

김형준 변진혁 (MCU)

1. BLDC모터 제어(PID 제어)
2. Servo모터 제어(PWM 제어)
3. BLDC/Servo모터의 방향제어 및 속도제어 (ESC 제어)
4. 조향제어(수학적 제어)
5. 전원 회로 설계 및 기타 필요 회로 구현
6. DSP 와의 통신 구현 (CAN 통신 or DMA)

Role

김현수(FPGA, 포탑 파트)
1. 다른 보드와 통신(Linux Device Driver)
2. 모터, 센서 등 제어(Linux Device Driver)

Role

봉선우(DSP)
1. 리눅스 디바이스 드라이버
2. 와이파이 모듈 연결 및 안드로이드 개발(자바킹)
3. 포탑 운용에 대한 수학적 제어 수식 구현

Role

최준호(DSP, FPGA)

1. FPGA Linux Porting
2. FPGA 각종 하드웨어 제어 및 통신 위한 Linux Device Driver
3. FPGA 부속 하드웨어 선정 및 그 회로
4. DSP Linux Device Driver 구현 서포트
5. DSP Wireless 통신 구현 서포트