Fermentation Station

Agenda

1 | Where are we?

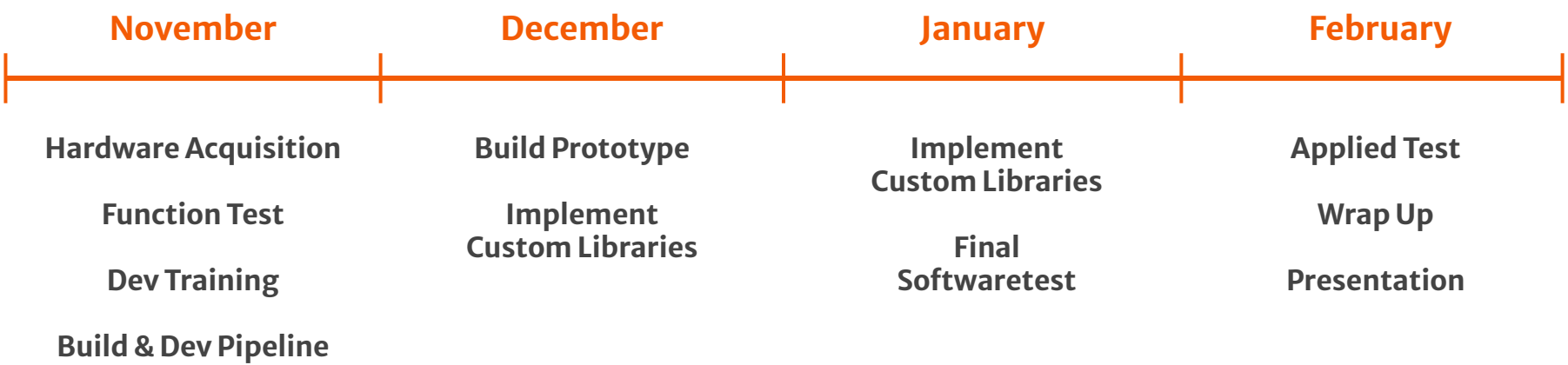
2 | Hardware & Implementation

3 | Challenges & Blockers

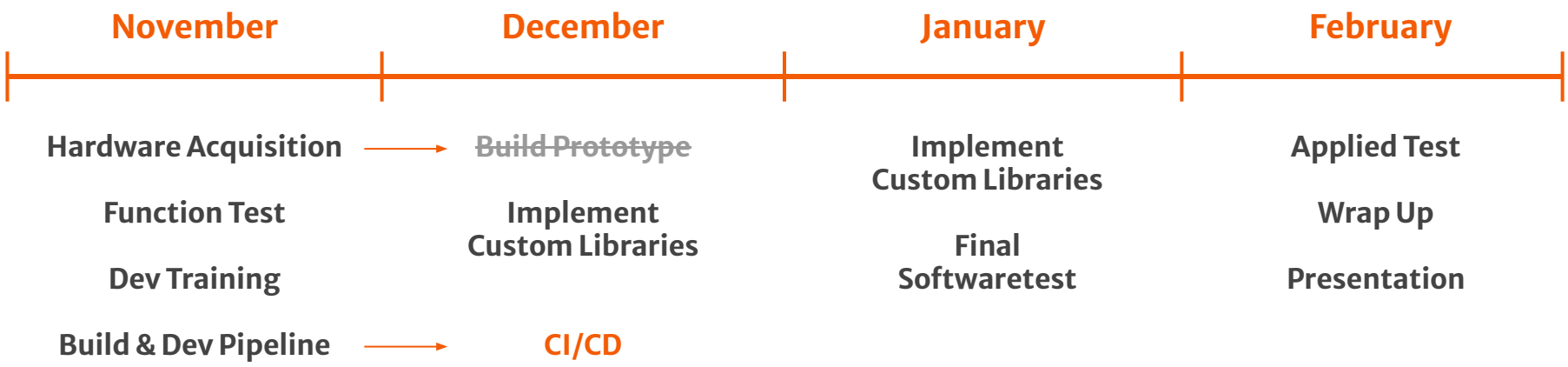
4 | Outlook

Where are we?

Milestones


November
December
January
February
Hardware Acquisition
Function Test
Dev Training
Build & Dev Pipeline
Build Prototype
Implement Custom Libraries
Implement Custom Libraries
Final Softwaretest
Applied Test
Wrap Up
Presentation

Milestones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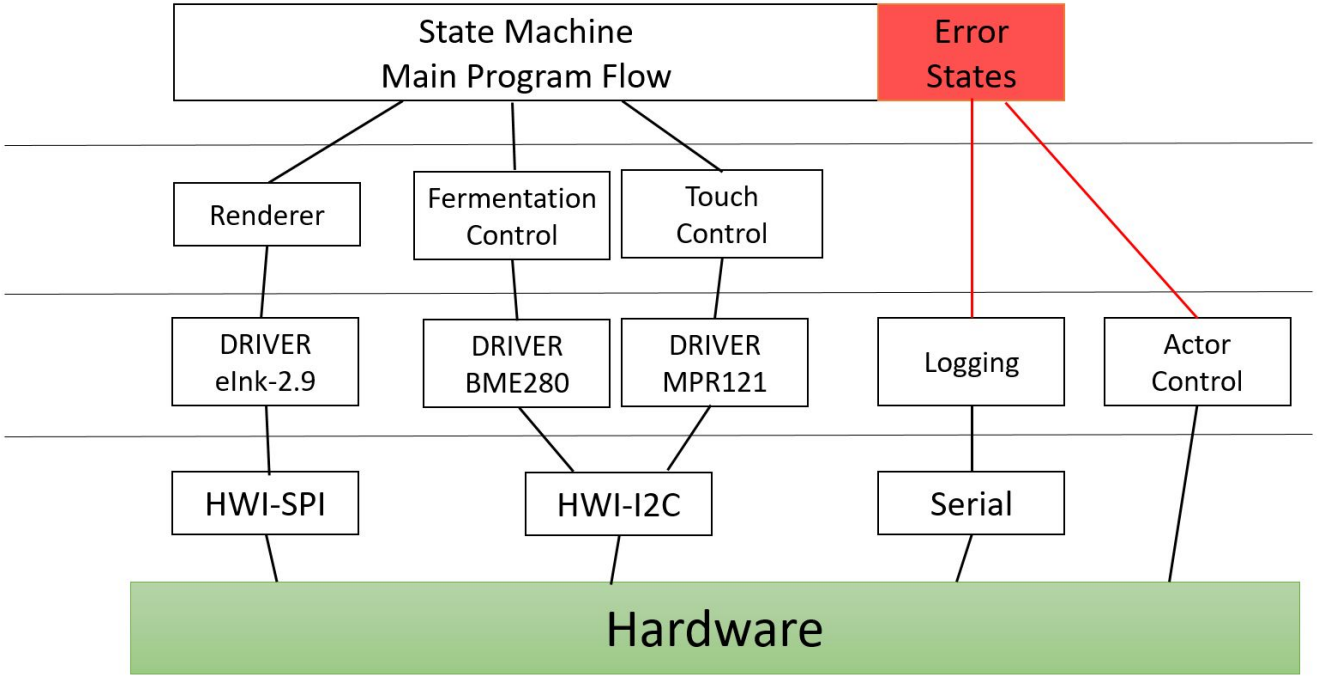
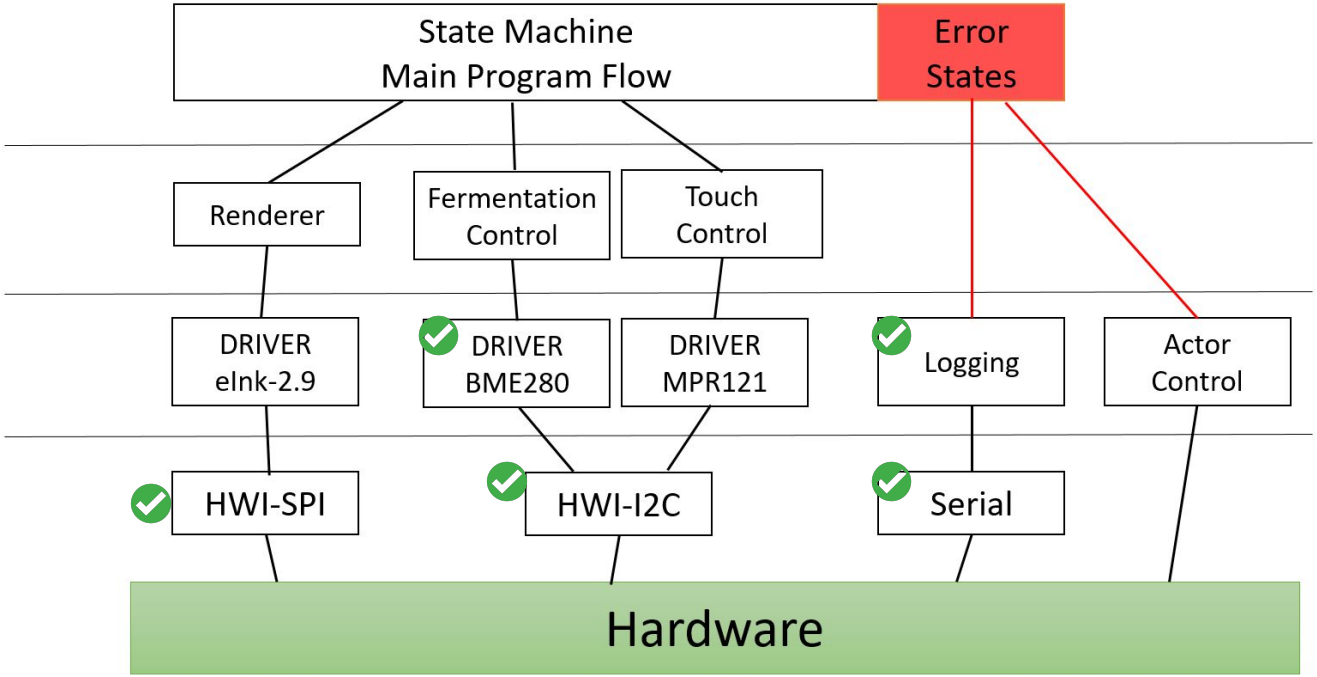
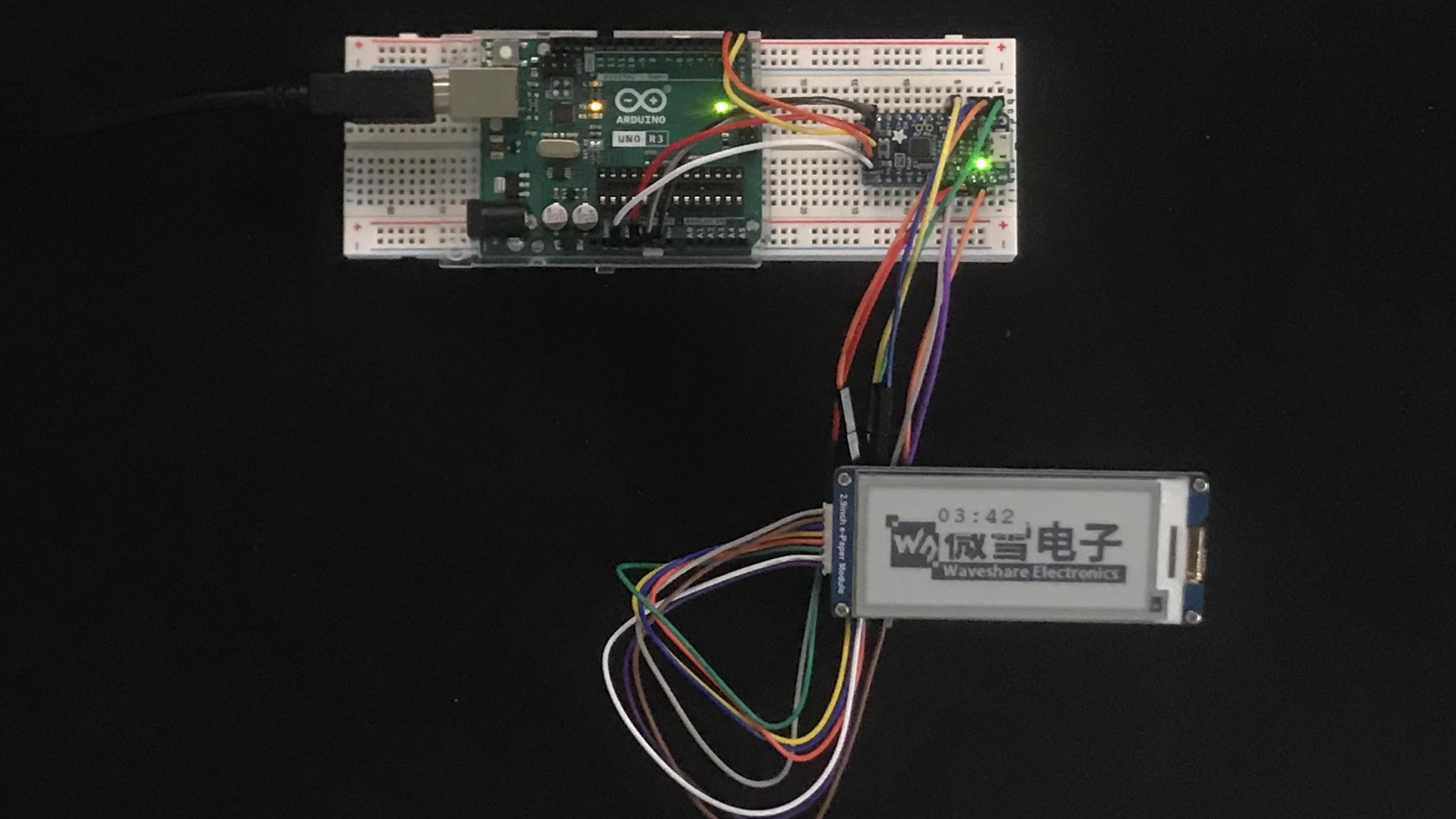
SW Architecture



SW Architecture



Hardware


ARDUINO
UNO R3
03:42
2.9inch e-Paper Module
Waveshare Electronics

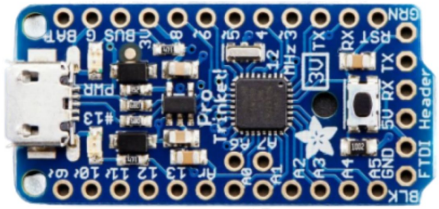
Arduino Uno & Adafruit Pro Trinket

ATmega328P

UNO for serial communication

Trinket: 3.3V | UNO 5V

Trinket: 10 € | UNO: 10 €

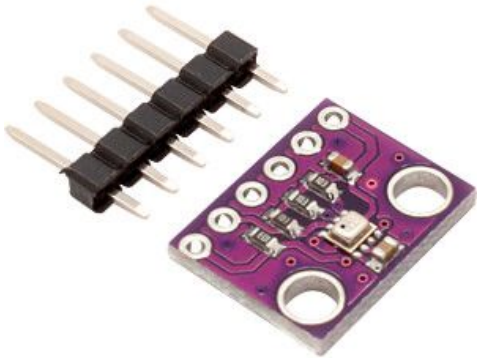


Humidity Sensor BME280

Humidity and Hardware Sensor

I2C

~6€

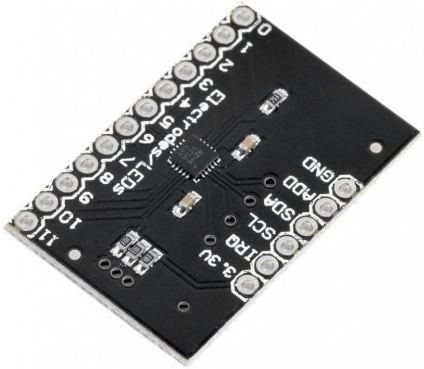


Capacitive Touch MPR121

Capacitive Touch

I2C

~2€



Heating Element

Heating Cable

24V / 30W

IPX7

AC/DC

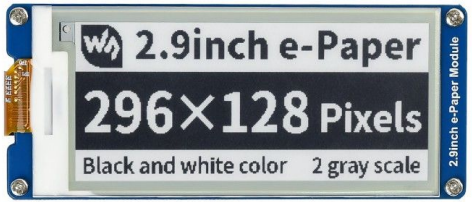
~30€

Waveshare eInk 2.9inch

Electrophoretic (eInk) Display

SPI

~16€



Challenges & Blockers

Blockers

None! :)

Challenges

(Logging)

Hardware Failure

Bad Documentation

Heating Element

Display Driver Implementation

```
void display_send_command(uint8_t command)
{
  // may not send commands while display is busy
  display_wait_until_idle();

  // make display interpret data as command
  // by setting the Data/Command pin to low
  // high pin would lead to interpretation as data
  PORTB &= ~_BV(DC_PIN);

  // send command
  spi_main_transmit(command);
}
```

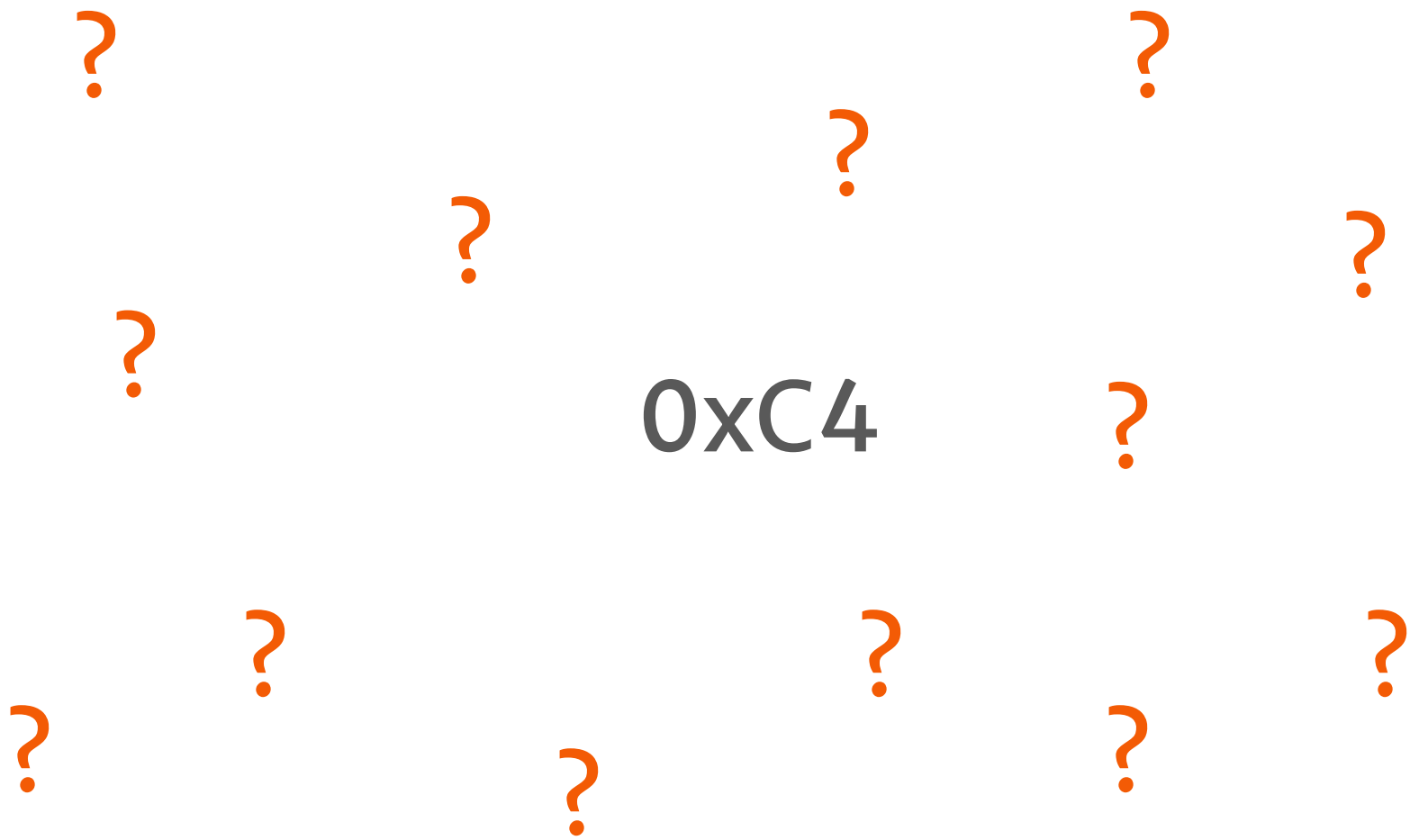
```c
void display_send_data(uint8_t data)
{
  // may not send data while display is busy
  display_wait_until_idle();

  // make display interpret data as command
  // by setting the Data/Command pin to low
  // low pin would lead to interpretation as command
  PORTB |= _BV(DC_PIN);

  // send data
  spi_main_transmit(data);
}
```

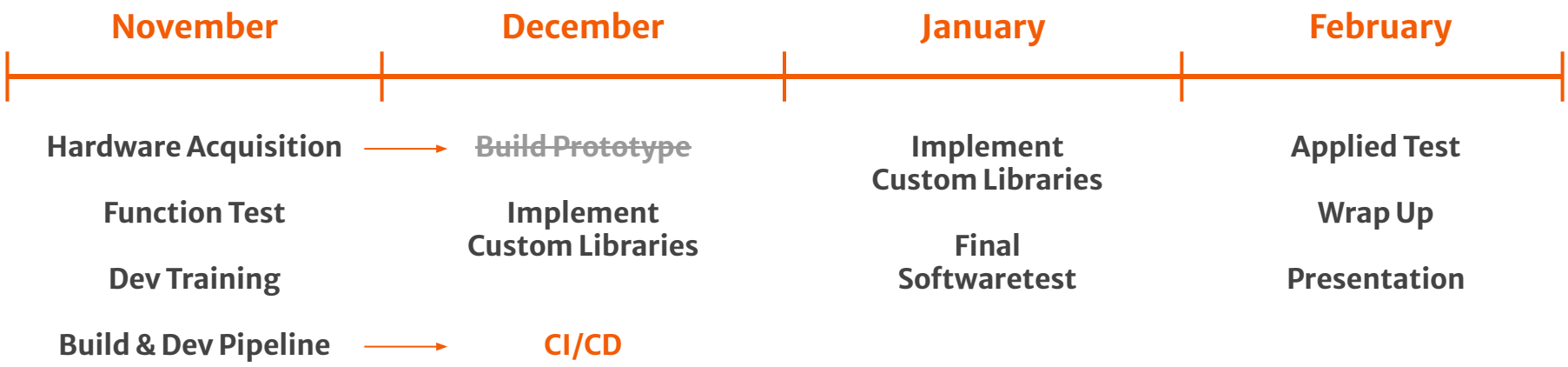
Command	Data	Data	Data
Command	Data	Data	
Command			
Command	Data		

0xC4


0xC4

Outlook

Milestones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Thank You!