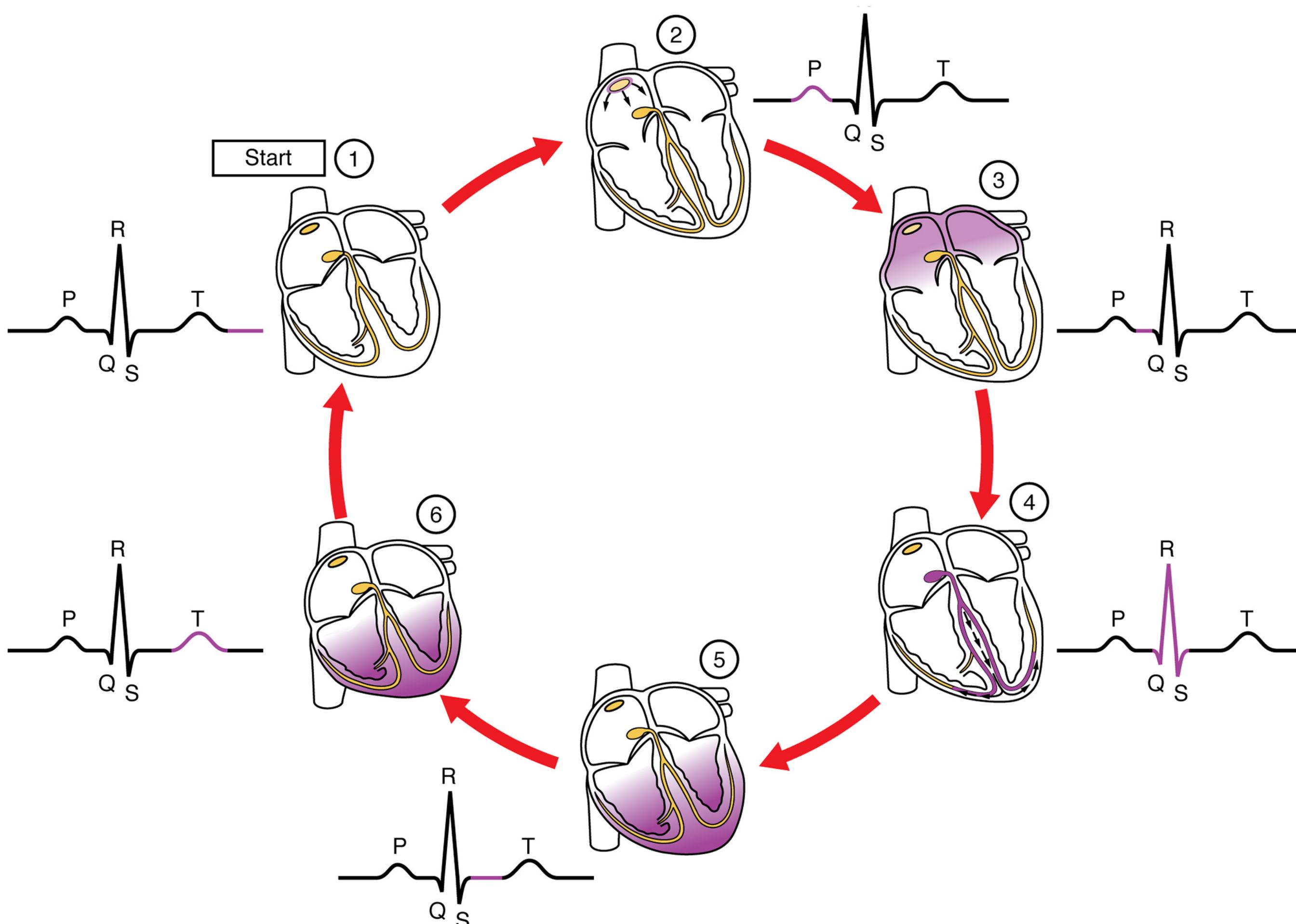
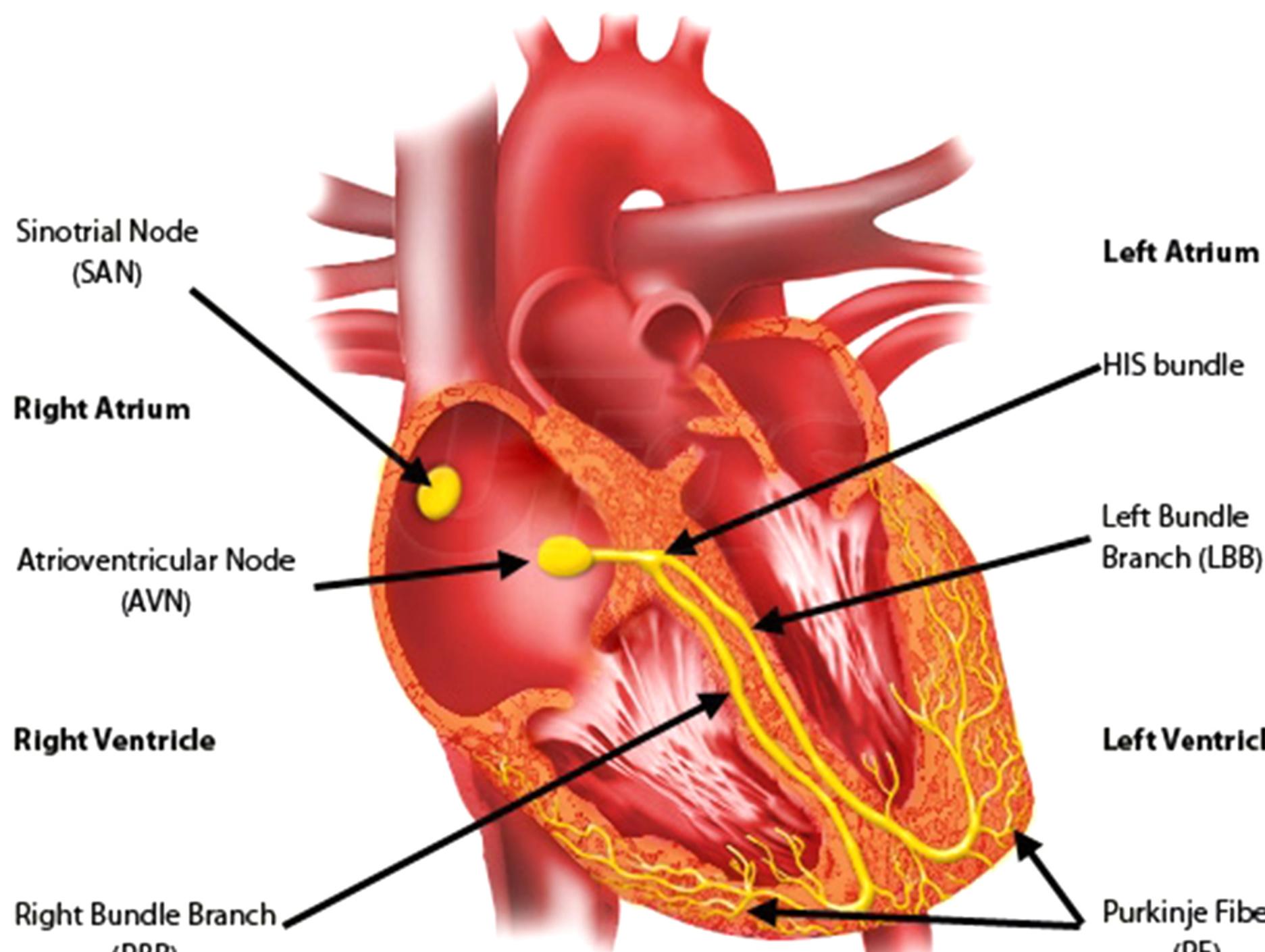


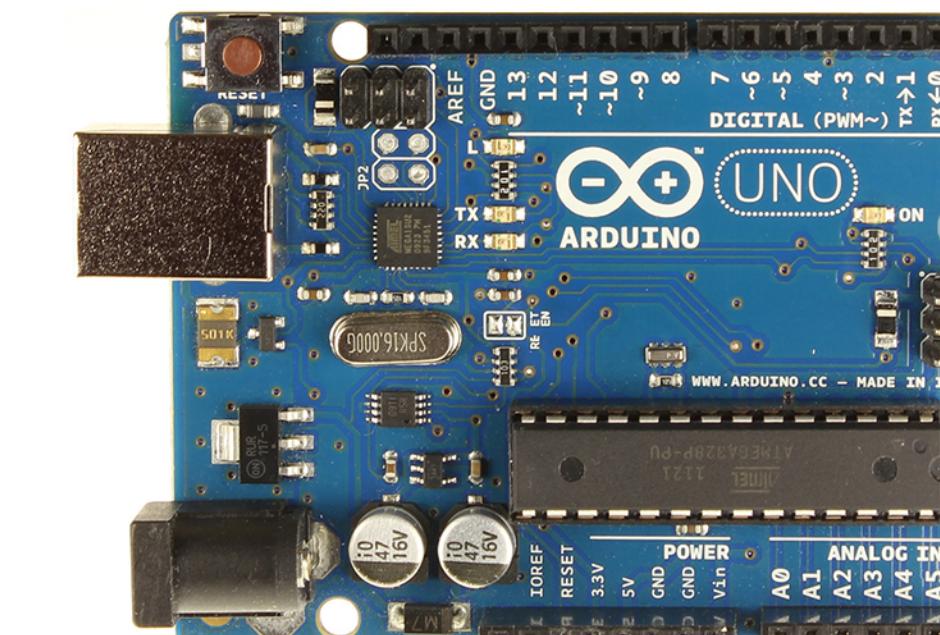
Measuring Your <3 With Python

EKG Crash Course

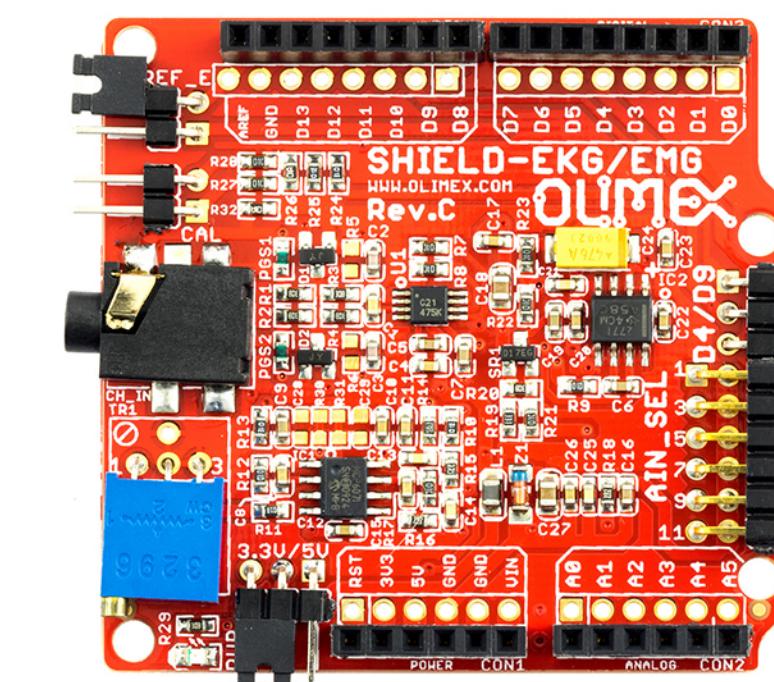
Cardiac Conduction System



Tools Used



Arduino Uno R2



Olimex EKG-EMG
Shield

The Flow

- Voltage Created (By Heart)
- ↓
- Voltage Read (By Olimex)
- ↓
- Voltage Converted To Bytes (By Arduino/Olimex)
- ↓
- Bytes Read (By Python)
- ↓
- Bytes Plotted (By Python)

The Code

```
struct OlimexPacket
{
    uint8_t sync0;           // = 0xa5
    uint8_t sync1;           // = 0x5a
    uint8_t version;         // = 2 (packet version)
    uint8_t count;           // packet counter. Increases by 1 each packet.
    uint16_t data[6];        // 10-bit sample (= 0 - 1023) in big endian.
    uint8_t switches;        // State of PD5 to PD2, in bits 3 to 0.
};

class PacketStreamReader:
    def __init__(self, serial):
        self._serial = serial

    def get_next_packet(self):
        byte0, byte1 = 0, 0

        while byte0 != SYNC0 or byte1 != SYNC1:
            in_waiting = self._serial.inWaiting()
            if in_waiting < PACKET_SIZE - 1:
                return None
            byte0, byte1 = byte1, self._serial.read()

        buff = bytearray()
        buff.append(ord(byte0))
        buff.append(ord(byte1))
        # read 15 more bytes
        buff.extend(self._serial.read(PACKET_SIZE - 2))
        return buff
```

