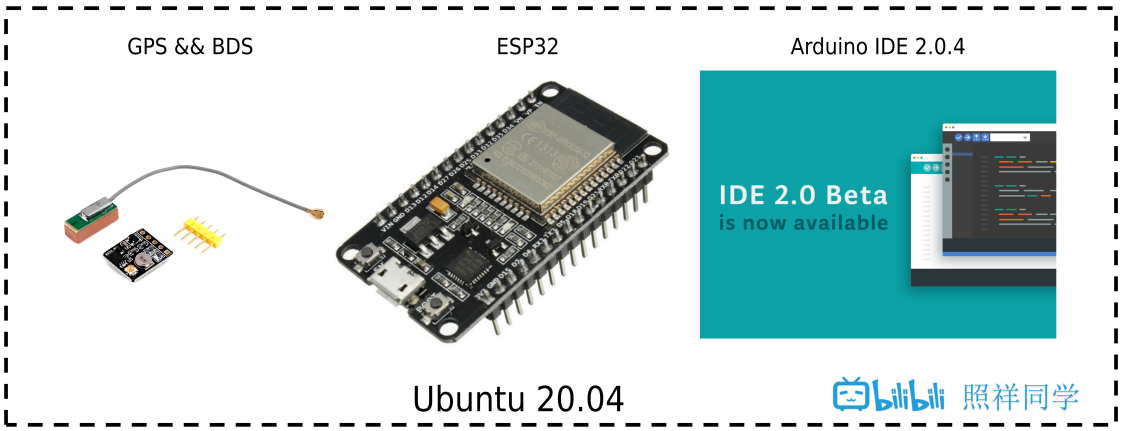
Chapter 6 ESP32_GPS_BDS_Module

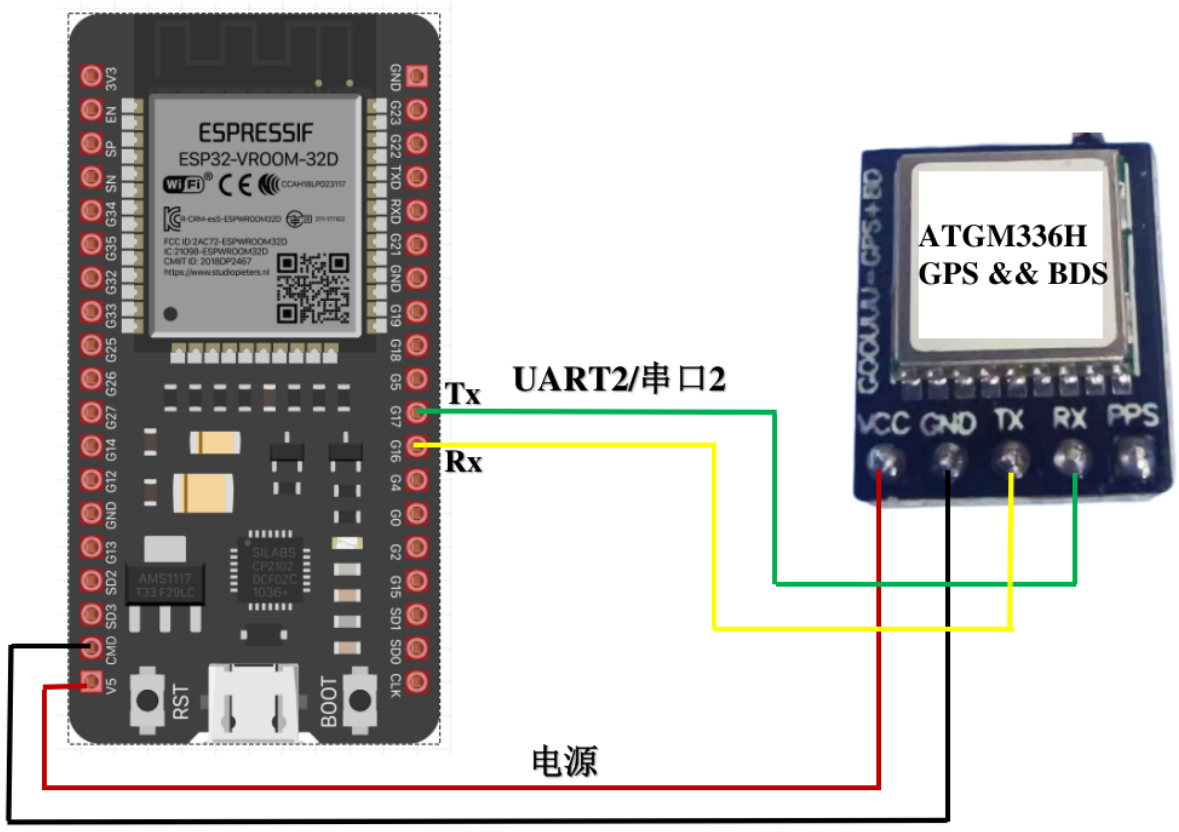


06-ESP32_GPS_BDS_module

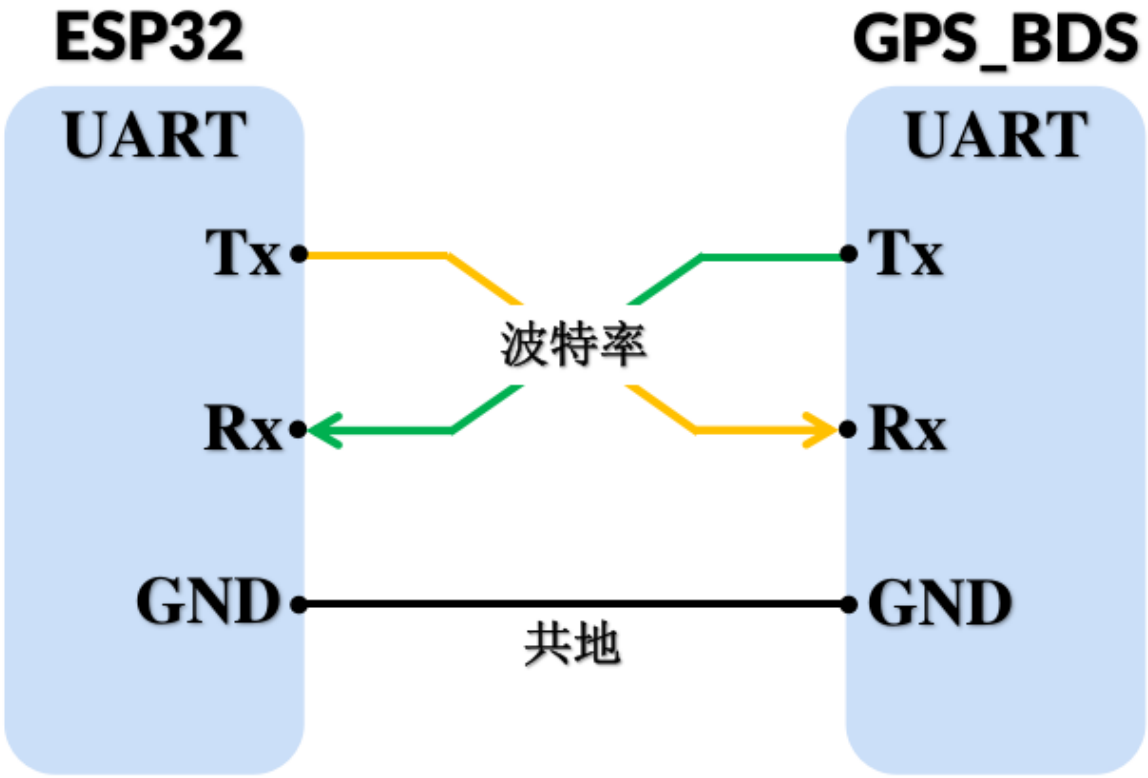
URL: https://github.com/ZhaoXiangBox/esp32_ros2_robot

Videos from Bilibili 照祥同学: 第六节：ESP32通过串口获取定位数据

First : Connect MPU6050 Module with ESP32



```
接线说明:
    GPS 正极 +（红色）<--------> ESP32_Vin (5.0V)
    GPS 负极 -（黑色）<--------> ESP32_Gnd (0V)
    数据引脚 Rx（绿色）<--------> ESP32_GPIO17 (Tx2 Ouput)
    数据引脚 Tx（黄色）<--------> ESP32_GPIO16 (Rx2 Input)
```



Second : ATGM336H GPS_BDS Module Output message.

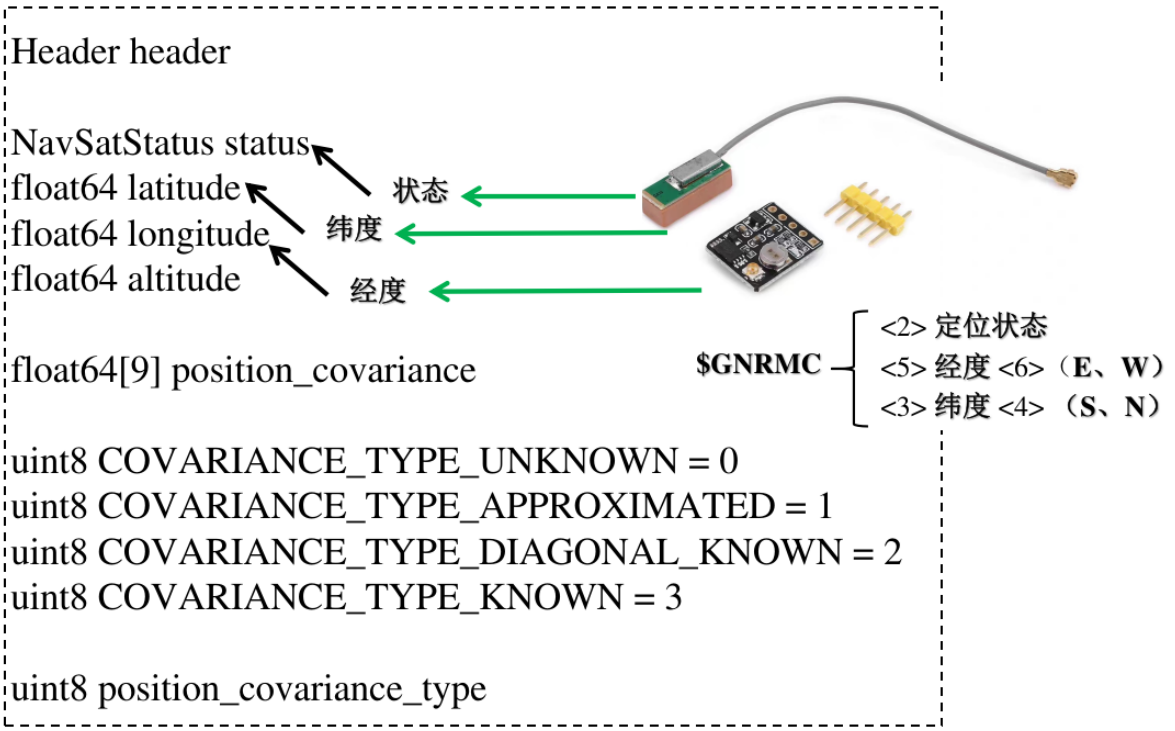
```
$GPGSV,4,2,14,15,75,246,26,18,24,318,19,20,32,068,38,23,12,279,*7D
$GPGSV,4,3,14,24,15,176,26,29,49,246,,30,12,052,32,194,,,21*72
$GPGSV,4,4,14,195,49,146,31,199,,,24*4A
$BDGSV,3,1,10,01,,,31,06,,,24,13,,,26,16,43,171,28*53
$BDGSV,3,2,10,23,11,122,23,27,56,180,32,28,12,155,16,32,65,317,30*6C
$BDGSV,3,3,10,38,61,038,29,41,,,31*52
$GNRMC,132527.000,A,3020.23767,N,11212.50091,E,0.00,60.48,180423,,,A*4C
$GNVTG,60.48,T,,M,0.00,N,0.00,K,A*19
$GNZDA,132527.000,18,04,2023,00,00*46
$GPTXT,01,01,01,ANTENNA OK*35
$GNGGA,132528.000,3020.23762,N,11212.50089,E,1,12,1.1,46.8,M,0.0,M,,*42
$GNGLL,3020.23762,N,11212.50089,E,132528.000,A,A*4E
$GPGSA,A,3,02,05,13,15,20,195,,,,,,,1.7,1.1,1.4*0F
$BDGSA,A,3,16,23,27,28,32,38,,,,,,,1.7,1.1,1.4*23
$GPGSV,4,1,14,02,32,319,30,05,49,040,36,11,28,122,29,13,70,056,21*7E
$GPGSV,4,2,14,15,75,246,26,18,24,318,19,20,32,068,36,23,12,279,*73
$GPGSV,4,3,14,24,15,176,24,29,49,246,,30,12,052,32,194,,,21*70
$GPGSV,4,4,14,195,49,146,32,199,,,24*49
$BDGSV,3,1,10,01,,,31,06,,,24,13,,,26,16,43,171,28*53
$BDGSV,3,2,10,23,11,122,23,27,56,180,31,28,12,155,16,32,65,317,30*6F
$BDGSV,3,3,10,38,61,038,28,41,,,31*53
$GNRMC,132528.000,A,3020.23762,N,11212.50089,E,0.00,60.48,180423,,,A*4F
$GNVTG,60.48,T,,M,0.00,N,0.00,K,A*19
$GNZDA,132528.000,18,04,2023,00,00*49
$GPTXT,01,01,01,ANTENNA OK*35
$GNGGA,132529.000,3020.23753,N,11212.50111,E,1,12,1.1,47.5,M,0.0,M,,*4D
$GNGLL,3020.23753,N,11212.50111,E,132529.000,A,A*4D
$GPGSA,A,3,02,05,13,15,20,195,,,,,,,1.7,1.1,1.4*0F
$BDGSA,A,3,16,23,27,28,32,38,,,,,,,1.7,1.1,1.4*23
$GPGSV,4,1,14,02,32,319,30,05,49,040,35,11,28,122,29,13,70,056,21*7D
$GPGSV,4,2,14,15,75,246,26,18,24,318,19,20,32,068,37,23,12,279,*72
$GPGSV,4,3,14,24,15,176,24,29,49,246,,30,12,052,32,194,,,21*70
$GPGSV,4,4,14,195,49,146,32,199,,,24*49
$BDGSV,3,1,10,01,,,30,06,,,22,13,,,26,16,43,171,28*54
$BDGSV,3,2,10,23,11,122,23,27,56,180,31,28,12,155,16,32,65,317,30*6F
$BDGSV,3,3,10,38,61,038,28,41,,,31*53
$GNRMC,132529.000,A,3020.23753,N,11212.50111,E,0.88,60.48,180423,,,A*4C
$GNVTG,60.48,T,,M,0.88,N,1.63,K,A*1D
$GNZDA,132529.000,18,04,2023,00,00*48
$GPTXT,01,01,01,ANTENNA OK*35
```

默认波特率：9600

该定位模组可搜索GPS和北斗卫星导航信号，通过**串口**的方式输出定位信息，串口输出协议参照NMEA0183 的规定，如上截图，在开阔位置定位模组的输出帧开头通常有：$GPGSV、$BDGSV、**$GNRMC**、$GNVTG、$GNZDA、$GNTXT、$GNGGA、$GNGLL等开头字样，这些不同帧头的数据帧内部包含内容均在 NMEA-0183（美国国家海洋电子协会为海用电子设备制定的标准格式）标准中有说

明。

· ROS GPS Msg



串口输出信息解释:

```
    Save_Data.UTCTime = 121100.000  // hhmmss.sss （小时分钟秒钟.秒钟） 12:11:00 格林威治时间
    Save_Data.latitude = 3020.26146 // ddmm.mmmmm(度分)30度20分
    Save_Data.N_S = N               // 北半球
    Save_Data.longitude = 11212.49989 // ddmm.mmmmm(度分)112度12分
    Save_Data.E_W = E               // 东半球
```

update by zhaoxiangli 2023.04.18