

WEB SYSTEM OF THE DATABASE ORACLE FOR AUTOMATED DATA PROCESSING FROM GPS DEVICE

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ABSTRACT

However strange it may seem, the GPS data processing problem is that the data are received in the form of text file in the format of NMEA-0183 protocol. All data is transmitted in the form of sentences. Only printable ASCII characters are allowed, plus CR (carriage return) and LF (line feed). Each sentence starts with a "\$" sign and ends with <CR><LF>. There are three basic kinds of sentences: talker sentences, proprietary sentences and query sentences (Fig.1) [1].

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$GPRMC,125352,A,5656.4803,N,02409.3465,E,0.0,183.4,190308,5.8,E,A*1D
$GPRMB,A,0.00,L,,SIGULD,5708.612,N,02450.922,E,25.762,61.5,,V,A*76
$GPGGA,125352,5656.4803,N,02409.3465,E,1,09,0.9,24.7,M,24.8,M,,*7B
$GPGGA,A,3,04,05,,13,14,20,23,30,31,32,,1.5,0.9,1.2*39
$GPGSV,3,1,10,04,16,312,47,05,00,334,42,12,08,000,42,13,08,222,43*7F
$GPGSV,3,2,10,14,06,049,38,20,81,252,47,23,45,213,46,30,08,032,38*72
$GPGSV,3,3,10,31,39,079,49,32,14,093,41*78
$GPGLL,5656.4803,N,02409.3465,E,125352,A,A*41
$GPBOD,61.5,T,55.7,M,SIGULD,*42
$PGRME,6.0,M,6.3,M,8.7,M*22
$PGRMZ,81,f,3*22
$GPRTE,1,1,c,*37
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Figure 1. NMEA-0183 message from GPS receiver

Keywords: GPS data processing, Database, NMEA files, JDeveloper

WEB SYSTEM DEVELOPMENT OF A DATABASE FOR GPS DEVICE

Data of the different experiments from the various NMEA files are kept in a specially created database „GPS_data”. Database as already was mentioned allows executing the data selection unlike a simple file format. It can take out from the database with the simple SQL query such experiment data, which conform to certain criterion. SQL *Loader used to upload the *.txt file from GPS device.

SQL*Loader is the primary method for quickly populating Oracle tables with data from external files. It has a powerful data parsing engine that puts little limitation on the format of the data in the datafile. SQL*Loader is invoked when you specify the sqldr command or use the Enterprise Manager interface [2].

The data after preprocessing are systematized saved in the database with the Web interface, this software was specially written for GPS user devices precision research with the Oracle database and JDeveloper.

JDeveloper is a freeware IDE from Oracle. It offers features for development in Java, XML, SQL and PL/SQL, HTML, JavaScript, BPEL and PHP. JDeveloper covers the full development lifecycle from design through coding, debugging, optimization and profiling to deploying (Fig.2).

This application was developed based on an Oracle Application Server, together with some custom web pages. The Oracle Application Server and database maintains data integrity and security, allowing users access to only the data they need. Oracle Spatial database extensions were used to quickly provide spatial querying capabilities [3]. The current web server application could be further improved to extract the GPS data from the Oracle database for the relevant time period. Using the web in use to manage the GPS data from the database, you can import the data in xsl format and pdf format.

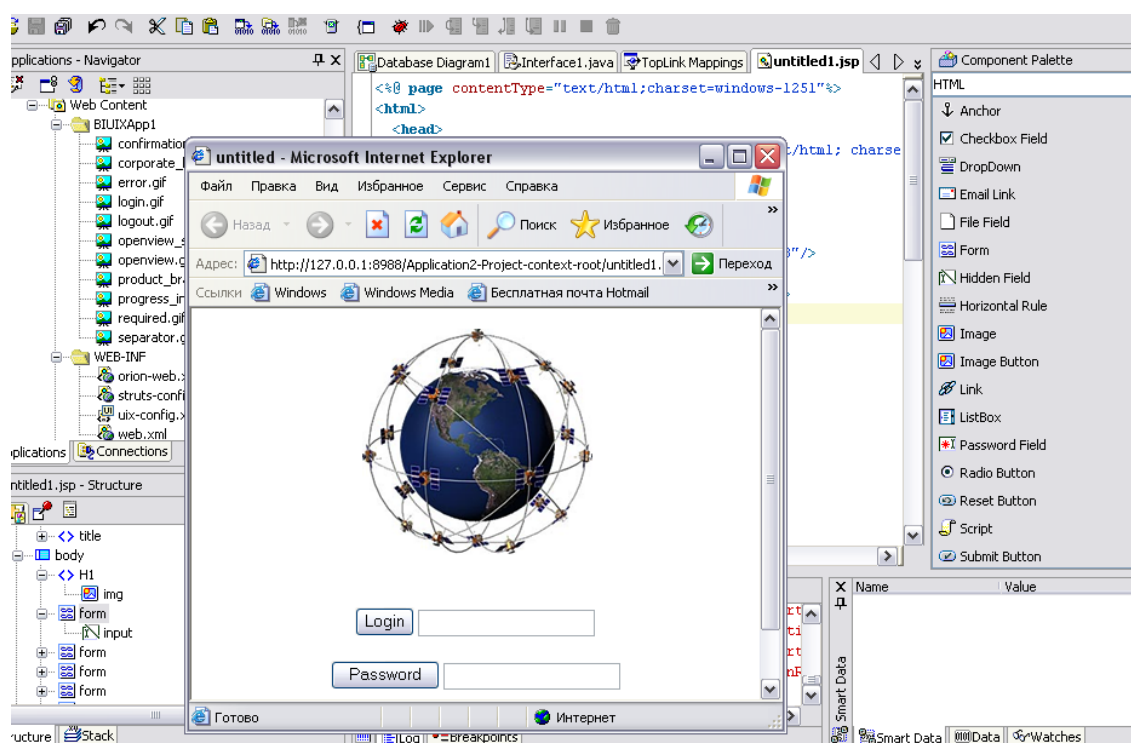


Figure 2. Web system development in JDeveloper

CONCLUSION

During the work it was found, that the test results aggregate need to save in the database not in the primary text files in the format of NMEA-0183 protocol. In this work, it is common knowledge that for efficient processing of data from the GPS receiver must upload data in a database with web interface. Web interface is formed in JDeveloper and HTML language it helps a user to manage the GPS database „GPS_data” with is created in Oracle.

REFERENCES

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