

GPS-GSM Modem Application as Car Position and Fuel Monitoring System

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Abstract-problems delay delivery of fuel to gas stations is still difficult to predict. This raises concerns of distributors. We also difficult to know the contents of the tank as it was stolen during the trip. This study aims to resolve the issue. By utilizing GPS, GSM modem and ultrasonic sensors we can know the location and position of the car in detail, and to determine the volume of fuel in the tank. We use google maps that created with Delphi program.

BACKGROUND

Background research on the utilization of GPS and GSM modems for monitoring the position and volume of the fuel tank with an ultrasonic sensor is of research on bus monitoring PNJ [1]. Other research is to use a GPS with real-time method for determining the position of the car [2]. There is also the of research on the control based autopilot control system with GPS [3]. Another idea is based on the research of victims of accidents with GPS monitoring [4].

CURRENT RESULTS

Results of tests consist of Hardware, Software, and performance testing. The purpose of this test is to determine the performance of each part of the circuit as well as the overall system. Tests carried out in two stages: The first stage is done in the electronic engineering laboratory and the second stage of data collection is done in a certain position. The hardware consists of three parts, height, position measurement data transmission system, and the data received in the

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The data received in the form of an SMS message which is displayed through the computer. The first tool that has been made in this study is the Fig 1. The figure shows the position and height of data delivery. The test results are shown the GPS data and ultrasonic sensors that are processed through the Arduino UNO board. Furthermore, this data is displayed via Hyperterminal as shown in Fig 2. From the data Hyperterminal: A9 + CMGS = 085 325 117

596; B-2.983400085325117596; C104.732269. Data for Value A: Value A shows the data for the high-value 9 means 9 cm. CMGS = 085325117596 denotes sending an SMS to the number Wavecom Fastrack Modem. Value B: The B-2.983340085325117596 2.983400 longitude data show the five digit number in front of B. Value 12 digits from behind showing B-2.983400085325117596 number Wavecom Fastrack Modem. Value C: Value C104.732269 latitude data shows 104.732269. From the data: A9 + CMGS = 085 325 117, 596, B-2.983400085325117596 and it can be seen 104.732269 high data measurement ultrasonic sensor 9 cm while the manual measurement using a gauge 10 cm and the position is in the laboratory Microprocessor State Polytechnic Palembang. Testing Results in 3: Data acquisition and high position in the form of SMS which will be displayed on the Delphi program. Picture taken the data from the test to 1 then the third test to be displayed may be displayed the data google map via the GPS position of the Delphi program is that in laboratory Microprocessor State Polytechnic Palembang on longitude and latitude = = -2.92648 104.732238. While high data 9 cm. In Table 1 testing to 1 position data and high data on GPS and ultrasonic sensor (transmitter) the importance of the volume of fuel (petrol) 1099 liters. In the 2nd test position data and high data on GPS and ultrasonic sensor (transmitter) the importance of the volume of fuel (petrol) 1099 liters. In Table 3 testing to third position data and high data on GPS and ultrasonic sensor (transmitter) the importance of the volume of fuel (petrol) 1099 liters.

On testing the 4th position data and high data on GPS and ultrasonic sensor (transmitter) the importance of the volume of fuel (petrol) 1099 liters. On testing the 5th position data and high data on GPS and ultrasonic sensor (transmitter) the importance of the volume of fuel (petrol) 1099 liters.

ACKNOWLEDGEMENTS

The project was supported by following Foundations: Grants Hiba Compete Higher Education in 2013/2014

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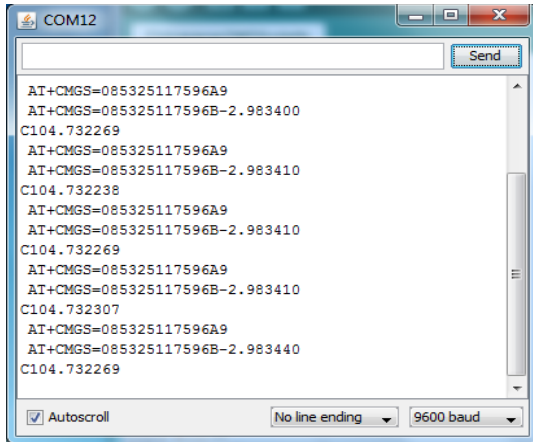


Fig. 1. Data displayed through Arduino hyperterminal

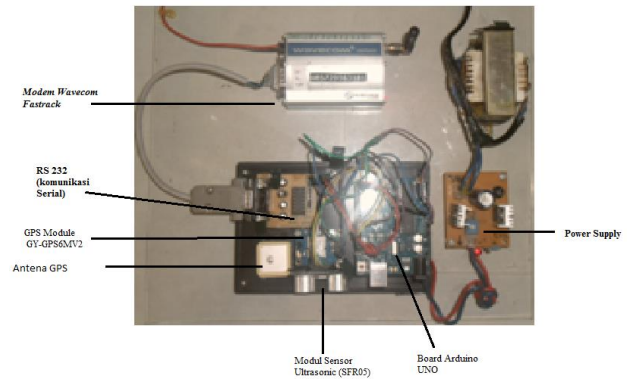


Fig.3. Device 1 Arduino UNO connected to Wavecom modem used to send data through SMS



Fig.4. Device 2 Wavecom modem connected to a PC used to receive data sent from device 1.

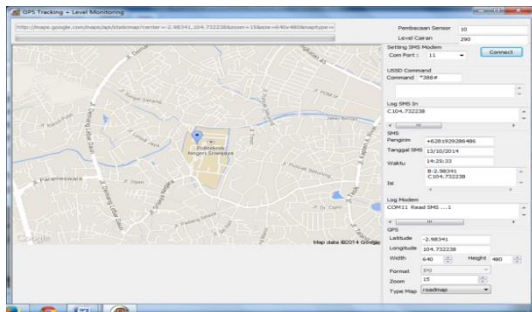


Figure 2. Data collecting in the receiver position in 3rd test displayed in Google Maps

Test Number	Longitude	Latitude	Height	Tank Volume (Liters)
1.	-2.983400	104.732269	9 cm	1099
2	-2.983410	104.732238	9 cm	1099
3	-2.983410	104.732269	9 cm	1099
4	-2.983410	104.732307	9 cm	1099
5	-2.983440	104.732269	9 cm	1099

Table 1. 1st – 5th data Test (On Transmitter)