Graphical User Interface (GUI) of GPS Data (Dumy Data)

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Abstract. Increasingly growing technology also develops software (software) for computers such as mission planner. This mission planner works to remotely control remote with telemetry support and GPS background to use graphical user interface (GUI) so that it can describe mapping of ship position existence and depth which have been passed by the tool. Meanwhile, for the simulation using autopilot (unmanned) which its manufacture using C + + language. What is done in this survey ship experiment is that it can transmit data to the graphical user interface for processing and mapping made in simulation we use dummy data to measure success in the manufacture. The hypothesis of this research is that graphical user interface can display soil contour graph that can show depth of river and use original map taken directly from Bingo maps online for tracking GPS. But in the simulation experiments in Visual Studio to display graphical user interface not in accordance with the hypothesis that should display 3D is still 2D.

1. Introduction

Visual programming at this point is very important for use in prototypes, interactive design and fast analysis. This visual programming is not designed to replace conventional programming, but to convert a pictorial presentation into a structural list, then we create a graphical user interface (GUI) that serves for communication interface that users interact with the computer graphically (not text), graphical user interface can also be concluded as an application that displays menus, icons, navigation, and other tools that replace command prompt commands or shell commands. This makes it easier for a computer user to operate a device than to remember commands that use text in a particular command box. It is based that humans are easier to remember images than writing. In addition to the computer, the use of graphical user interface is also applied to some specific business types. For example is a bank owned ATM. Although text-based, it is considered semi graphical user interface because users do not have to type in commands to transfer money. You just need to press a button parallel to the existing menu. Even today many bank ATM machines are already equipped with touch screen.

Graphical user interface is created to monitor between users with a microcontroller that is connected to the graphical user interface via serial port, Graphical user interface is made to monitor the user with the microcontroller yanyang we will apply to the submarine cabling problems, which installation is divided into several stages' connected with graphical user interface via serial port, The first is a submarine cabling planning survey, usually done within a period of 6 months to 2 years prior to the installation stage, the survey was conducted with the aim of obtaining basic baseline sea level information, existing cable and pipeline, b carcasses, as well as natural hazards that will be ensured once again [1]. Due to the large amount of data required in designing marine cabling routes, marine cabling is one of the most valuable marine engineering works due to the considerable installation costs, so an

optimal marine cabling planning is required. Which often runs a risk of 3 to 5 times the risk of failure [2]. The second stage is an installation that aims to check whether the underwater installations are in accordance with the planned. We can assume that the graphical user interface will be used to monitor the state of submarine structures which require some technical requirements, one of which the user graphical user interface understands the morphology of the seafloor. Therefore we will visualize the data obtained from a depth gauge for the mapping.

2. Methods

The method used in the research "Graphical User Interface (GUI) of GPS Data Dummy" is contained in several stages described in the flowchart in Figure 1.

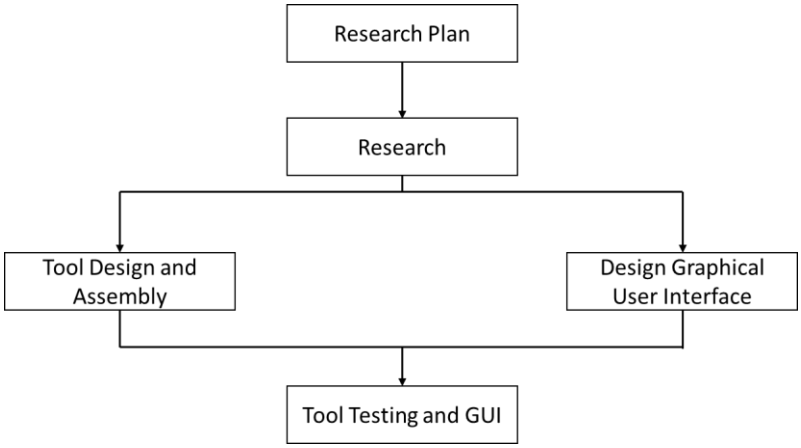

Figure 1. Making GUI.

2.1. Research planning

In this stage there are several things that need to be determined and considered, among others:

- Initial research framework
- Estimated needs
- Possible application of the application to be designed.

2.2. Design and assembling tool

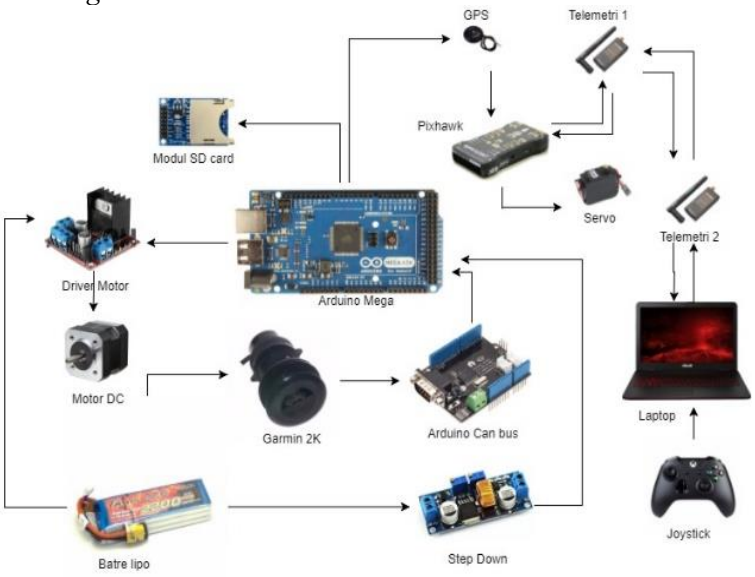

Figure 2. Assembly.

The above block diagram describes the components of the survey vessel designed to measure the depth that is in control with the ATMega microcontroller which has the Atmel AVR (Arduino) processor as shown above, where the arduino here serves to connect all components to execute commands from the microcontroller installed in the RC (Remote Control) small ship. In this ship using Arduino Mega microcontroller which is given a 5 volt supply of 5600 mAh lippo battery which is stabilized by stepdown for the incoming voltage fixed stated 5 volts, This microcontroller is in program to turn the dc motor with the help of motor driver and can be controlled with TTL or microcontroller circuit. DC motors controlled by L293D IC drivers can be connected to ground or to a positive voltage source because in the driver L293D the driver system used is the totem pool. In 1 unit of IC L293D chip consists of 4 pieces of DC motor driver stand alone with the ability to drain current 1 Ampere per driver.

In addition to turning on this microcontroller motor ordered 2000 garmin sensor to measure the depth that requires 12 volt power directly from the battery and transmit data that has been taken and stored into the Sdcard. Pixhawk serves to connect the user with the help of telemetry and GPS that RX and TX is inserted into arduino pin as the receiver of data that sent by GPS and stored in Sdcard other than that also functions for the flight control of the rader (servo) which to turn the ship, where this report deals more with pixhawk communication with arduino.

2.3. Design graphical user interface

Figure 3. Visual studio.

The graphical user interface design was developed using Visual Studio which is used to develop applications which in this software have adopted Object Oriented Programming, which will be used for monitoring. This paper presents a new feedback-based technique for automated testing of graphical users [3].

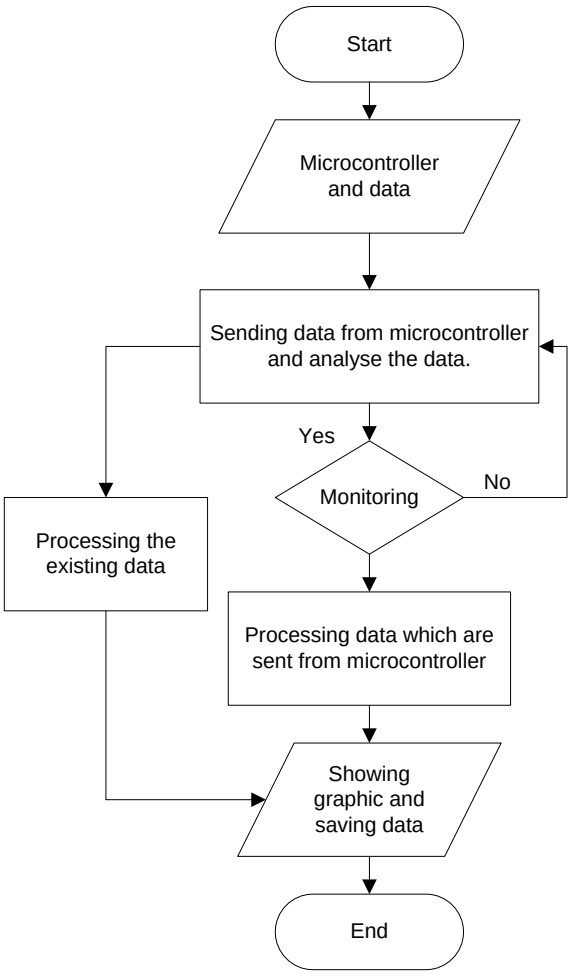

Figure 4. Flowchart GUI.

The use of GUI is like the figure above when we start the graphical user interface it will identify the connected microcontroller, when it is connected then the graphical user interface will monitor the data sent from the microcontroller in the form of text and processed into a graph that is received by the GUI itself or can process data that already exist for the graph process.

3. Results and discussion

3.1. Result tool

Figure 5. Ship design.

The figure above is the result of the assembly planning tool, which is used in the simulation at the foot of the river which gets some of the depth data included in this journal taken from around the Saguling reservoir as the table below.

Table 1. Depth data table.

Latitude:	Longitude:	Depth:
-6,83207	107,4686	0,64
-6,83206	107,4686	0,75
-6,83205	107,4686	0,87
-6,83203	107,4686	1,05
-6,83203	107,4686	1,14
-6,83202	107,4686	1,16
-6,83201	107,4686	1,25
-6,832	107,4686	1,28
-6,83199	107,4686	1,34
-6,83198	107,4686	1,37
-6,83197	107,4686	1,37
-6,83196	107,4686	1,51
-6,83196	107,4686	1,57
-6,83195	107,4686	1,54
-6,83194	107,4686	1,57
-6,83193	107,4686	1,63

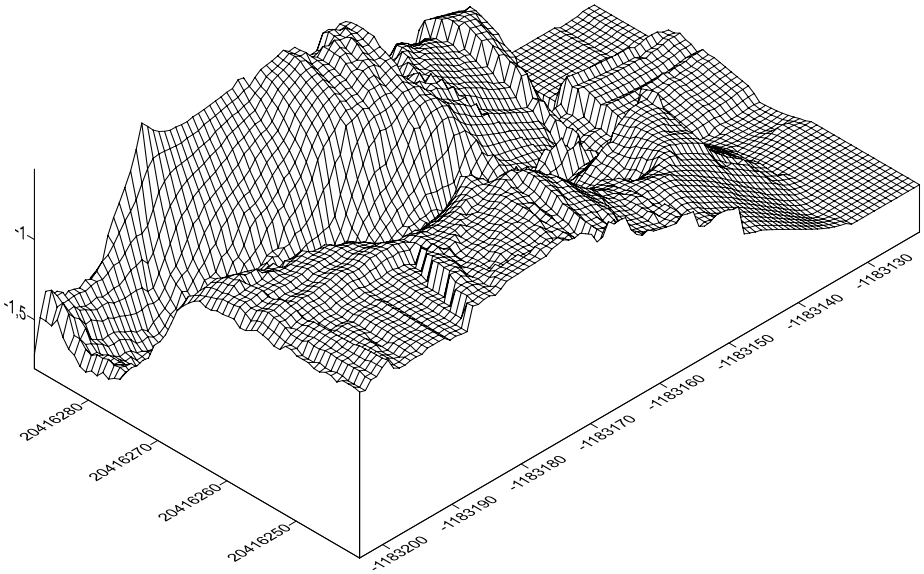

Figure 6. Contour data obtained.

The above figure is processed by using a surfer that shows the depth of the river foot Saguling.

3.2. Result GUI

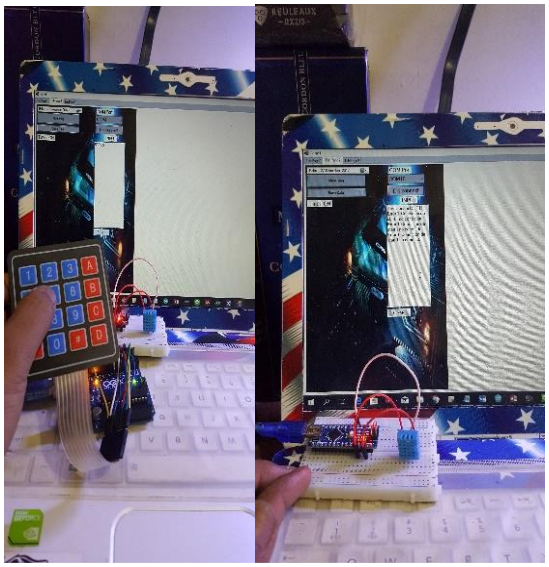

Figure 7. Monitoring data received.

The figure above is an overview of the graphical user interface that serves to send data from microcontroller to gui simulated by looking at temperature monitoring, which graphical user interface will be used for gps dummy data, in addition to monitoring can also process the data received to be made graphics and can display maps to view data latitude and longitude sent by gps but the graph.

4. Conclusions

The creation of this graphical user interface is still in the process of making the mapping (3D graphics) because the lack of clarity of the reference makes it, the better if creating a graphical user interface that smells with algorithms use MATLAB to make it easier to map data in order to be structured.

In the next development I hope this programmed shortage can be improved and hopefully can be better than the previous one.

References

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