

ELECTRONICS DESIGN OF KRISTENIA ANALOG COMPUTER

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ABSTRACT

In this research document, we described the design of an Electronics Analog Computer machine named as "Kristenia". I (Rohan Sarker) had recently designed the computer from JLD Engineering and Management College West Bengal, India. This design is made via Om Meters EDM-80 Desk Stand Analog 0-5V DC Moving Coil Voltmeter (BLACK), INVENTO 1Pcs 6V - 12V DC Motor Hobby Motor 27mm x 33mm 10000RPM For RC Toys Cars DIY Hobby Science Projects, Schneider Electric Livia Plastic 10AX 1 Way 1 Module Switch (White), Whirlpool Refrigerator Defrost Timer Match and Buy, Transformer 6 Volt Step Down 500mA for Diy Project Applications-1Pc, Philips 12569EVB1 H4 White Light Essential Vision Headlight (12V, 100/90W) & Electronicspices Solar for DIY Square Shape Mini Solar Panel 6V-100 mAh (70 x 70 x 03 mm) - (PACK OF 1) along with connecting wires.

Keywords: Analog, Computer, Framework, Voltmeter, Solar Cell.

I. INTRODUCTION

Analog computer has a wide variety of usages in Quantum Supercomputer designs in the fields of healthcare, manufacturing, retail & telecommunication. Analog computer in comparison with digital computer can be customized in circuits to give many applications. In this design, we used many different types of automotive and household electronics to give final shape to this revolutionary analog computer. Analog computer can be used to drive project methodologies like Waterfall, V&V, Spiral, Agile-Scrum, Lean and Hybrid with relevant ease of circuit customization. We can use both traditional as well as advanced programming models with analog computers.

II. METHODOLOGY

In the research methodology, we present the different circuit components that we used for design of analog computer. The total cost of this analog computer is INR 2500 and it involved buying and delivering the electronics components via Amazon. Use of automotive RADAR & refrigerator TIMER as HDD TX gives use added advantage in doing basic arithmetic and algebraic and trigonometric computation with checking Analog Voltmeter reading as output calculation values.

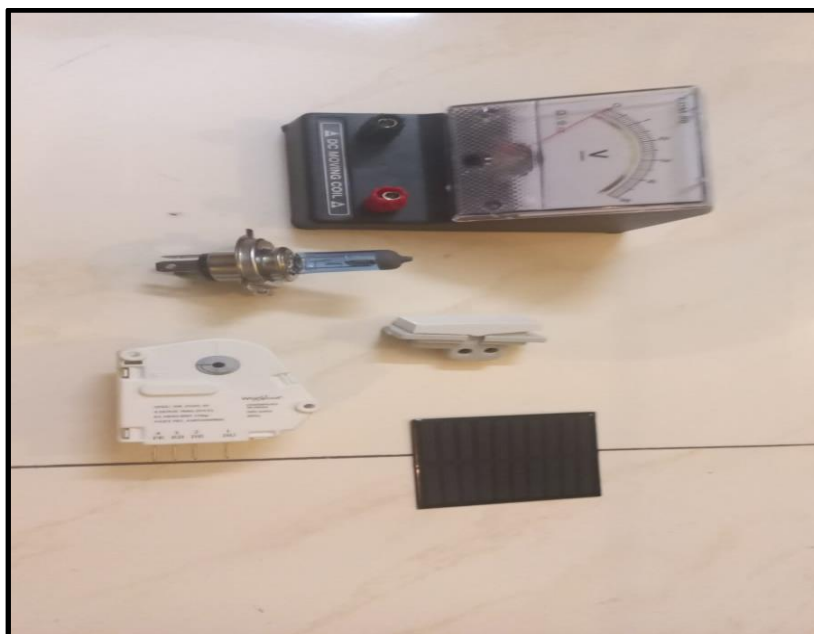


Figure 1: Electronic components (Top View)



Figure 2: Electronic components (Side View)

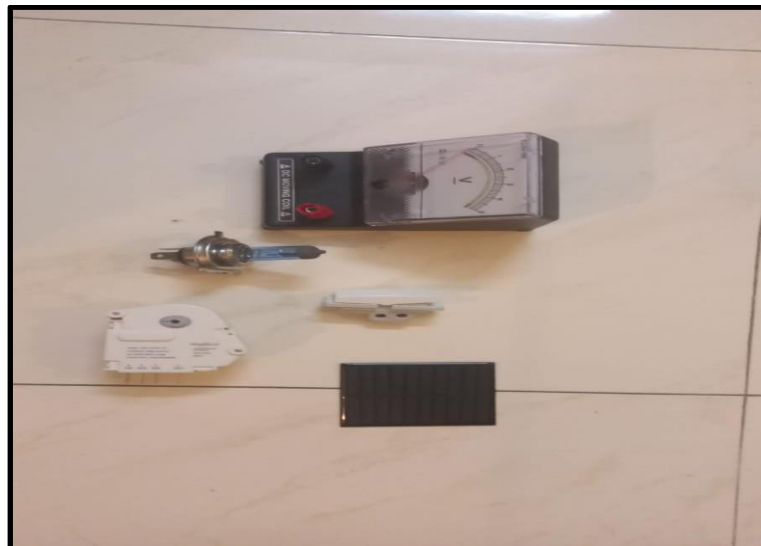


Figure 3: Electronic components (Another Top View)



Figure 4: Electronic components (Another View)

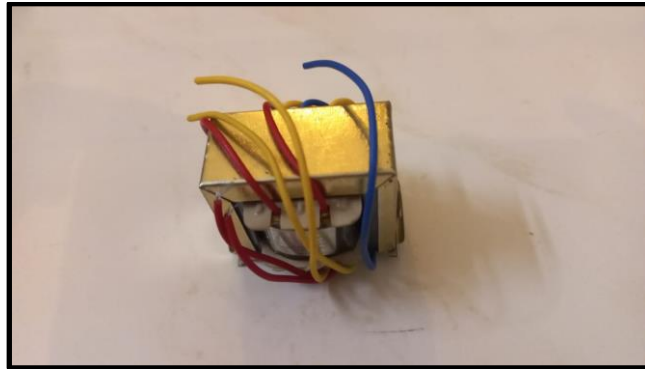


Figure 5: Transformer (Top View)

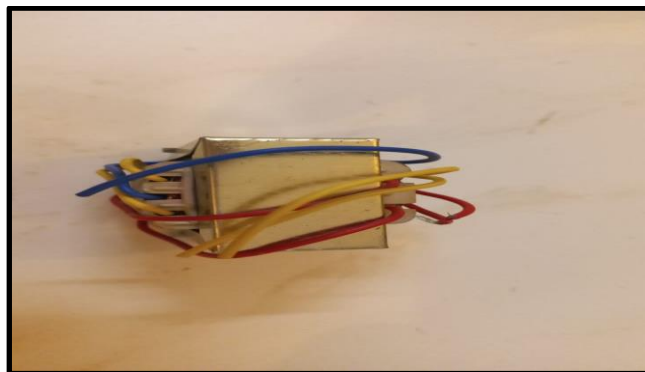


Figure 6: Transformer (Accurate Top View)

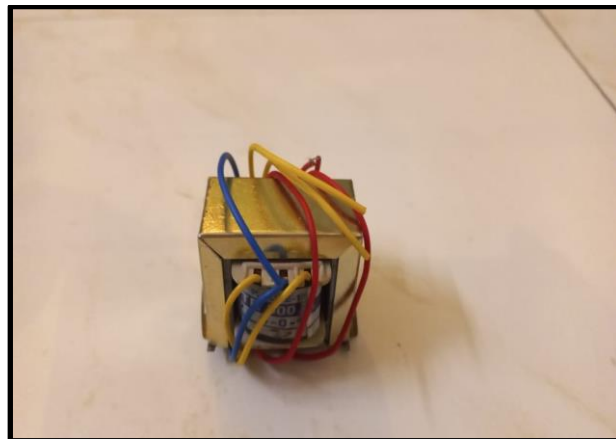


Figure 7: Transformer (Side View)

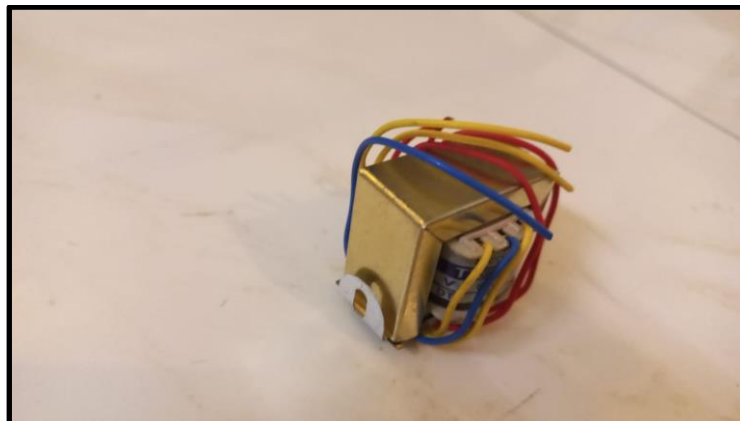


Figure 8: Transformer (Left View)



Figure 9: DC Motor (Front View)



Figure 10: DC Motor (Side View)



Figure 11: DC Motor (Right View)



Figure 12: DC Motor (Another Top View)

Here DC Motor acts as transducer radio to calculate accurate readings of analog computer. Transformer acts as interface between mathematics inputs and operations on one side and output calculations in another side. For each electronic component used, we have user login features to the analog computer interface and thus we have USER_ID & PASSWORD with the associated KEY_VALUE.

III. MODELING AND ANALYSIS

Modeling analysis for analog computer is done via component-based functionality analysis. In Figure 13, we presented the circuit diagram showing the 7 electronic components.

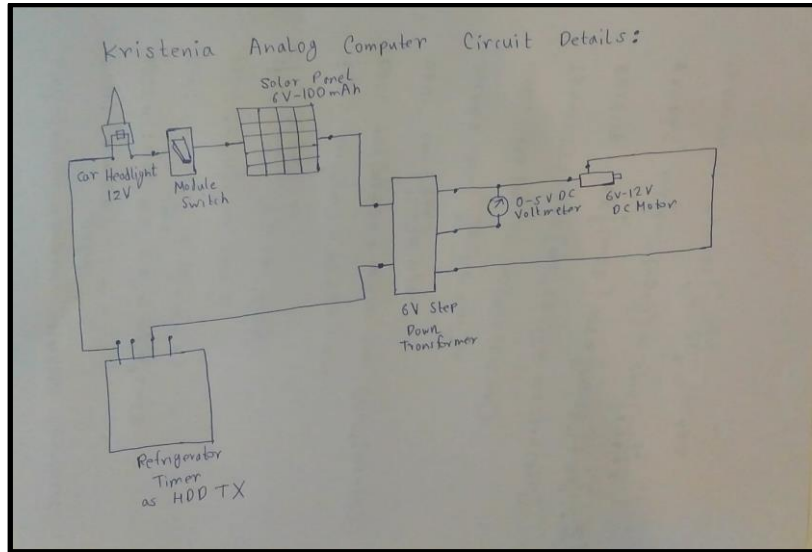


Figure 13: Kristenia Analog Computer circuit details

In the following diagram, we presented the connections between Solar Panel, Module Switch, Car Headlight, Refrigerator Timer, Step Down Transformer, DC Voltmeter and DC Motor. Each component has it's own set of functionality to work as a whole as an advanced analog computer.

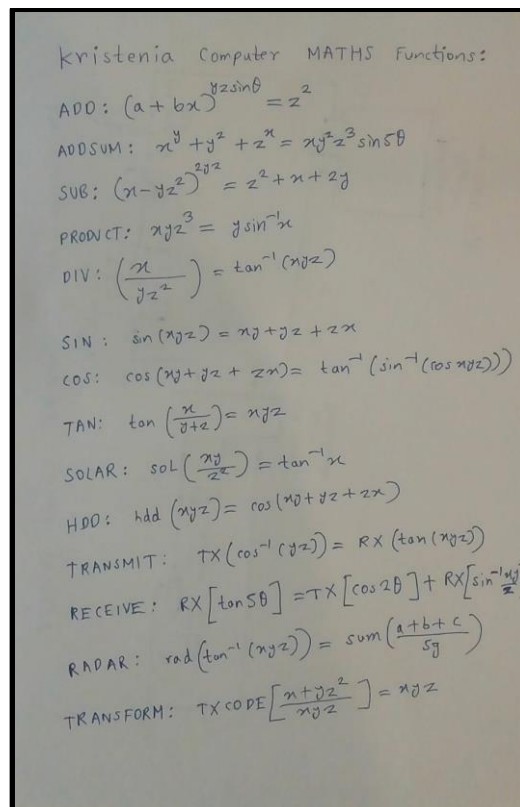


Figure 14: Kristenia Computer MATHS functions

In the following diagram, we presented the different analog computation functions.

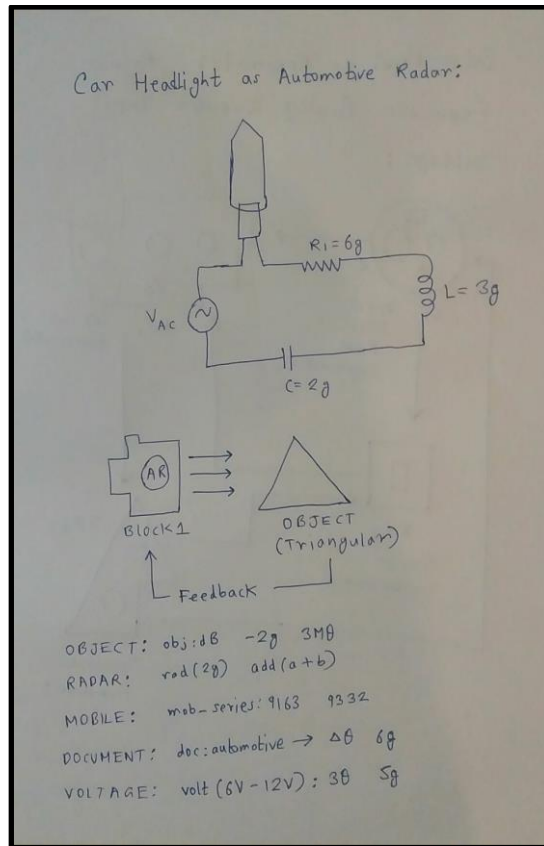


Figure 15: Car Headlight as Automotive RADAR

In the following diagram, we presented the RADAR functions with BLOCK to OBJECT interactions with functions such as OBJECT, RADAR, MOBILE, DOCUMENT & VOLTAGE.

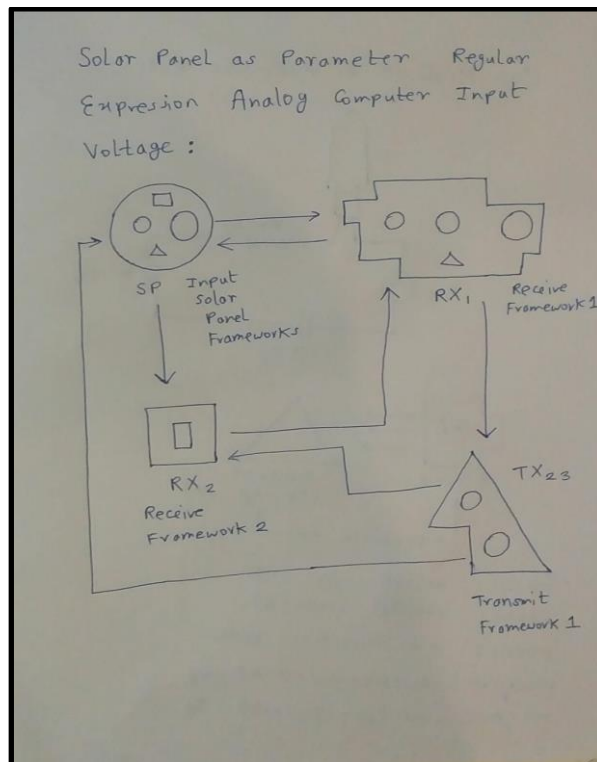


Figure 16: Solar Panel as Parameter Regular Expression Analog Computer input voltage

In the following diagram, we presented the interactions between Input Solar Panel Frameworks, Receive Frameworks & Transmit Framework.

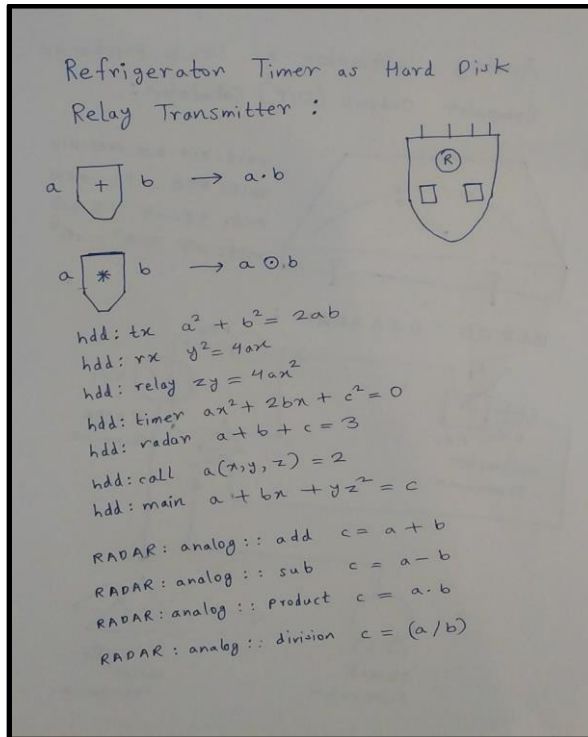


Figure 17: Refrigerator Timer as Hard Disk Relay Transmitter

In the following diagram, we calculate the analog functions that can be computed by Refrigerator Timer such as add, sub, product and division using HDD parameters such as tx, rx, relay, timer, radar, call and main.

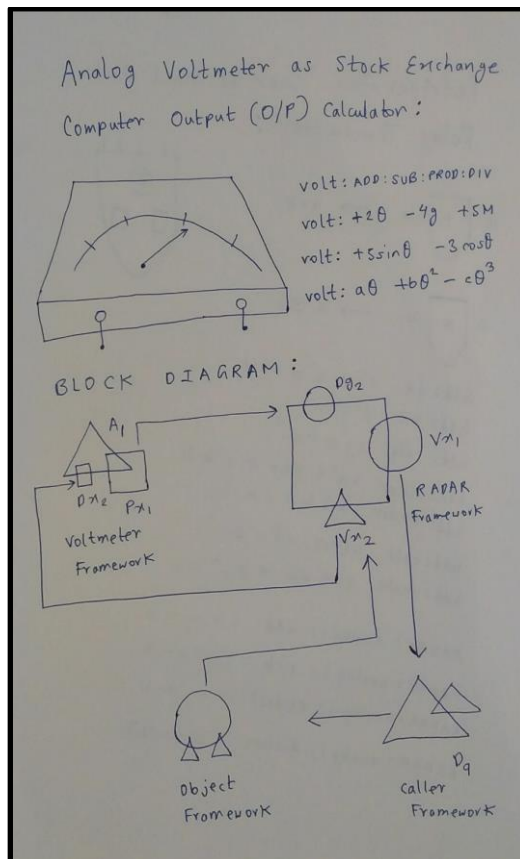


Figure 18: Analog Voltmeter as Stock Exchange Computer Output (O/P) Calculator

In the following diagram, we presented analog voltmeter as output calculator using voltmeter framework, RADAR framework, Object framework and Caller framework.

This definition thus gives us a compact view of the Kristenia Analog Computer in a BLOCK diagram view.

IV. RESULTS AND DISCUSSION

The results of this new scientific research have been found to be noteworthy. We expect 50 Lakhs INR funding from Jadavpur University & BE College along with IITs and IIMS. We want to sell this computer in schools such as Andrews School, Kalidhan Institution, South Point School, Patha Bhavan School, etc. in Kolkata (India). In marketing campaigns, we have decided to sell in Asian countries like India, Bangladesh, Pakistan, Nepal, Thailand, Malaysia and China.

V. CONCLUSION

The design of analog computer is different in each research. My research was based on plumber – hardware electronics theories and I had tried my best to make computer at affordable costs at INR 10000. In this way, we are making profit of $\text{INR } (10000 - 2500) = \text{INR } 7500$ at 300% profit rate.

ACKNOWLEDGEMENTS

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VI. REFERENCES

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