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Password Based Circuit Breaker Using GSMModule

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Abstract
An automatic electric switch known as a circuit breaker is used to safeguard an electrical circuit from harm brought on by overloading or short circuits**.** When we use our hands, we observe an increase in lethal electrical threats to cable workers during power line repairs because of a lack of communication and interaction between the repair employees and the power station workers. This project is made to tackle the issue with a design breaker so that only an authorised person may use it with a password in order to prevent such risks. Arduino has complete control over the system. The circuit breakers, which are switched on or off by a flashlight, are activated by entering the password into the keypad. Remote system control is possible thanks to the global mobile system (GSM) circuit. This leads to solving the problem of wasting time.
Keywords: Circuit breaker, Arduino, Relay, GSM Module.

INTRODUCTION

Based on embedded system. In this project, Arduino is utilized to manage all activities connected to the password system. For this procedure, we require a part like Arduino control circuitry and a power source like a keypad. Passwords for a different download function attached to the controller are entered using this keypad. To secure the lineman's safety, this project offers a solution to this issue. Since it has a very low retention rate.

There are several items on the market now, but they are all highly expensive and need a lot of time to use. The time needed for the lineman to recover when in the head is shortened by our gadget. The parts that our model requires are easily accessible on the market. Our project's major goal is to cut down on linemen time. Currently, if there is a weakness in the power line, the line will easily modify the power line and, after arriving at the station, turn off the power supply to the line by adding a secret word. By entering a secret key, the man will modify the stock in a specific line. A natural electric switch that is intended is called an electric switch.

This action is meant to handle the problem by disrupting the system until the person authorised to execute it addresses the issue in order to prevent such errors. Arduino entirely obstructs the frame. To unlock or contain circuit breakers, a secret phrase must be entered on the keypad. which a flashlight indicates. The control of the framework is made possible by the global portable circuit framework (GSM). This makes it challenging for us to waste time. The GSM module needed to deliver SMS is a

LITERARTURE SURVEY

"User-based flexible circuit breaker-based electric lineman protection": A circuit breaker is

an automatic electric switch created to guard against short circuit or overload damage to the electrical circuit. Its main job is to stop the current flow and identify the incorrect status. The circuit breaker can be reset (manually or automatically) to resume normal operation, unlike a fuse, which can only be used once before needing to be replaced. When performing manual labor, we observe an increase in fatal electrical risks on the lineman during electrical repairs as a result of poor communication between repair workers and employees of the power plant.

The breaker may be made to only be operable by authorised users with a password in order to avoid such risks. A setting for changing the password is also included here. The relay turns on or off the circuit breaker, which is shown by a lamp, and the keypad is used to enter the password. Because there is a lack of communication and cooperation between the care staff and the employees of the power station, serious electrical threats to linemen increase during electrical wiring.

With the use of the Intimation HT Wire Sag GSM app and Password Based Circuit Breaker, Vishal S. Kamble and Pramod M. Murari learned Electric Man security. The suggested approach offers a remedy that guarantees the safety of the repair team; specifically, the line driver who discovers the problem in the line lineman sends an SMS and the system line is turned off again after fixing the error and demonstrating good energy savings. which explains why a lineman is still present and working on the power cord. The suggested device uses Arduino only.

BACKGROUND

EXISTING METHOD:

Circuit breakers are crucial to keeping the security of the system. Because a malfunction could result in a partial shutdown and dangerous working circumstances. There could be a communication breakdown between the power line and the conductor of the sub-station or crew while the distribution cables are being maintained. Electrical wiring may pose a lifelong risk due to this communication gap. The sole person in line has control over the OPEN/CLOSING line. Customers are inconvenienced because the entire line is shut off while repairs are being made.

Fig1: Miniature circuit breaker

Fig 2: Electrical Fuse

PROPOSED SYSTEM:

Now let's see how the project works. First, when the power is on, the LCD displays the reception screen and asks you to enter a password to unlock it. In our case, the password was reset. Using Keyboard, the password is also entered as we type the password appears on the LCD. If the wrong password is entered, it will display an incorrect message and ask you to enter it again. When the correct password is entered, a large circuit breaker screen is opened. Now the status of 1 Arduino load connected to the LCD is shown on LCD whether it is ON or off.

By pressing the same password, the load can be locked. The GSM modem is an integral part of the proposed 'A' instructions obtained by Arduino. By default, permission is received via SMS sent depending on the status and permissionof the senders. The LCD screen is used here to display full functionality.

Fig 2: Proposed system

HARDWARE COMPONENTS:

- Arduino UNO
- 16 x 2 LCD display
- 4 * 4 Matrix Keyboard
- Relay
- Step down transformer (9-0-9)
- Mobile phone
- GSM module

- Power supply

BLOCK DIAGRAM:

Fig 3: Block Diagram

CIRCUIT DIAGRAM:

When the circuit is closed which is normal, the contacts contact and manage currently under this condition. Under a closed-circuit breaker, the contact conductors are currently known as electrodes that connect due to the pressure of the spring. Switching and maintenance of the system is maintained

by opening or closing the circuit breaker.

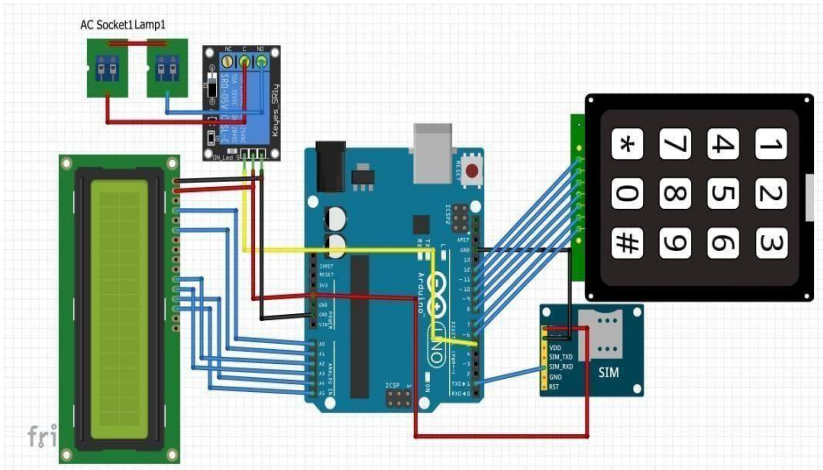


Fig4: Circuit Diagram

Under a closed-circuit breaker, the contact conductors are currently known as electrodes that connect due to the pressureof the spring. Switching and maintenance of the system is maintained by opening or closing the circuit breaker arms.

ALGORITHM:

Step 1: Assemble all components (Arduino Uno, LED, LCD display, down transformer, Relay, GSM Module).Step 2: Sort All Components Based on Circuit Drawing.

Step 3: Now place the adapter on the switch board and turn on the switch.

Step 4: Now upload the code to Arduino by inserting a single cable end into the USB port. Step 5: Now insert the SIM card into the GSM Module.

Step 6: Now we have to enter the password with the help of keypad. Step 7: The entered password is compared to the stored password.

Step 8: Now, if the password is correct, then the circuit shortcut changes its status (i.e., if it is already OPEN, nowCLOSED, now OPEN) and displays the status on the LCD.

Step 9: If the password is incorrect, the LCD will display the "incorrect password". Step 10: After some time, Arduino asks for a password by displaying "enter password".

Step 11: If the password is entered correctly, it will send an SMS to the cell phone via the GSM Module**.**

FLOWCHART:

The step-by-step operation of the proposed algorithm is described below in Figure 5,

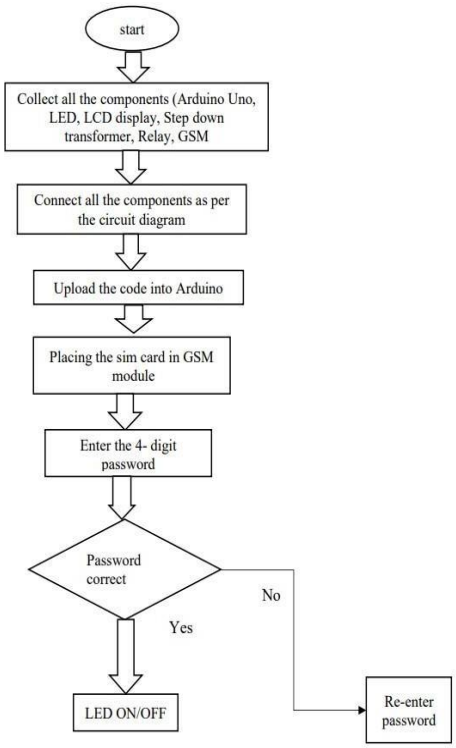
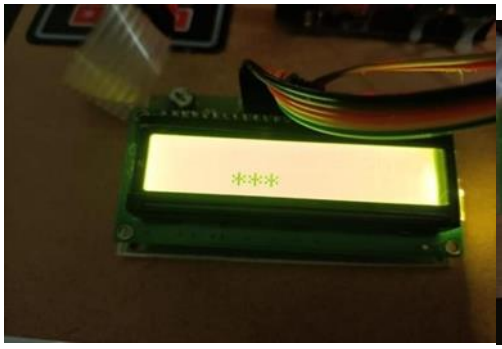


Fig 5: Flow chart

RESULTS AND DISCUSSIONS: The system's prototype working scenario and results are shown in the following steps and pictures.

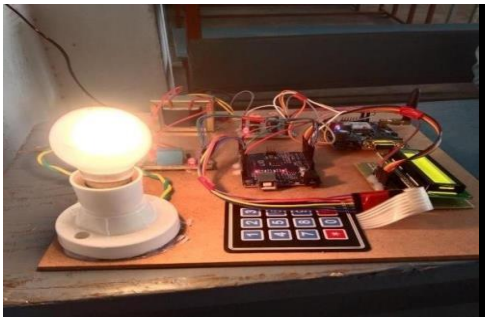


Step1: Project prototype

Step2: Displays the enter 4-digit password

Step3: Entering the password

Step4: Displays entered password



Step5: Line ON/OFF proposed system Step6: Overview of proposed system

CONCLUSION & FUTURESCOPE:

The project is organized in such a way that the rope access technician must enter the password ON / ON card. Now if there is an error in the power line, the lineman will close the power line by entering a password and properly correctingthe power line, and after accessing the lineman machine of the sub-channel in providing a specific line by entering the password.

REFERENCES:

1. M. Kezunovic, “Improving circuit breaker maintenance management services using mobile agent software technology” IEEE.

2. Charles H. Flurscheim (ed), Theory and Design of Power Circuit Breaker, Second Edition ET, 2011 ISBN 0906048702 Chapter I.
3. Narendra Khandelwal, Tanuj Manglani, Ganpat Singh, Amit Kumar, Dilip Khatri, "Automatic load distribution with password-protected circuit breakers" International Journal of Recent Research and Review, vol. VIII, Issued March 1, 2015.
4. 8051 Microcontroller Architecture, Programming & Applications -Kenneth J. Ayala
5. "8051 Microcontroller and Embedded Systems" by Muhammad Ali Mazidi and Janice Gillispie Mazidi. Pearson Education.
6. JSRD - International Journal of Scientific Research and Development | Vol. 4, Issued 01, 2016 | ISSN (online): 2321-0.
7. P Ramprakash, M Sakthivadivel, N Krishnaraj, J Ramprasath. ”Host-based Intrusion Detection System using Sequence of System Calls” International Journal of Engineering and Management Research, Vandana Publications, Volume 4, Issue 2, 241-247, 2014
8. N Krishnaraj, S Smys.”A multihoming ACO-MDV routing for maximum power efficiency in an IoT environment” Wireless Personal Communications 109 (1), 243-256, 2019.
9. N Krishnaraj, R Bhuvanesh Kumar, D Rajeshwar, T Sanjay Kumar, Implementation of energy aware modified distance vector routing protocol for energy efficiency in wireless sensor networks, 2020 International Conference on Inventive Computation Technologies (ICICT),201-204
10. Ibrahim, S. Jafar Ali, and M. Thangamani. "Enhanced singular value decomposition for prediction of drugs and diseases with hepatocellular carcinoma based on multi-source bat algorithm based random walk." Measurement 141 (2019): 176-183. https://doi.org/10.1016/j.measurement.2019.02.056
11. Ibrahim, Jafar Ali S., S. Rajasekar, Varsha, M. Karunakaran, K. Kasirajan, Kalyan NS Chakravarthy, V. Kumar, and K. J. Kaur. "Recent advances in performance and effect of Zr doping with ZnO thin film sensor in ammonia vapour sensing." GLOBAL NEST JOURNAL 23, no. 4 (2021): 526-531. https://doi.org/10.30955/gnj.004020 , https://journal.gnest.org/publication/gnest_04020
12. N.S. Kalyan Chakravarthy, B. Karthikeyan, K. Alhaf Malik, D.Bujji Babbu,. K. Nithya S.Jafar Ali Ibrahim , Survey of Cooperative Routing Algorithms in Wireless Sensor Networks, Journal of Annals of the Romanian Society for Cell Biology ,5316-5320, 2021
13. Rajmohan, G, Chinnappan, CV, John William, AD, Chandrakrishan Balakrishnan, S, Anand Muthu, B, Manogaran, G. Revamping land coverage analysis using aerial satellite image mapping. Trans Emerging Tel Tech. 2021; 32:e3927. https://doi.org/10.1002/ett.3927
14. Vignesh, C.C., Sivaparthipan, C.B., Daniel, J.A. et al. Adjacent Node based Energetic Association Factor Routing Protocol in Wireless Sensor Networks. Wireless Pers Commun 119, 3255–3270 (2021). https://doi.org/10.1007/s11277-021-08397-0.
15. C Chandru Vignesh, S Karthik, Predicting the position of adjacent nodes with QoS in mobile ad hoc networks, Journal of Multimedia Tools and Applications, Springer US,Vol 79, 8445-8457,2020