

Ceiling Fan Drops Down on Application of Weight

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Abstract—In India, hanging suicide is a serious concern. A sizable number of hanging instances are reported each year, according to data from India's National Crime Records Bureau (NCRB). The majority of hanging cases are typically suicidal. A homicidal case that results in a hanging scene is highly uncommon. The crime scene must be examined on numerous important locations in an undisturbed state, followed by an autopsy analysis, in order to differentiate between suicidal and homicidal hangings. This study's goal was to pinpoint the many elements that are connected to suicide by hanging in India in order to pinpoint potential intervention areas. Reduced suicide attempts are the primary goal of the initiative in order to address this issue

I. INTRODUCTION

In addition to the 703 000 suicides per year, many more people make suicide attempts. Every suicide is a tragedy that has a profound impact on the survivors, including the families, communities, and entire nations. Suicide occurs at any age and was the fourth leading cause of death worldwide for people aged 15 to 29 in 2019. Suicide is a global epidemic that affects all parts of the world, not only high-income nations. In fact, almost 77% of suicides worldwide in 2019 took place in low- and middle-income nations. Suicide is a significant public health issue, yet it can be avoided with prompt, evidence-based, and frequently inexpensive interventions. A thorough multi-sect oral

suicide prevention strategy is required for national interventions to be effective.

disorders) is well established in high-income countries, Many suicides occur rashly in the heat of the moment due to a breakdown in coping mechanisms, such as disease. Moreover, encountering strife and calamity, Suicidal behavior is closely linked to acts of violence, abuse, loss, and isolation. Lesbian, homosexual, bisexual, transgender, and intersex (LGBTI) people, indigenous peoples, convicts, and vulnerable groups who endure prejudice all have high suicide rates. An attempted suicide in the past is by far the biggest risk factor for suicide. One of the top 10 murderers in the world, hanging claims over a million lives annually. In India, hanging is the second most common method of suicide after poisoning. Suicide by hanging has increased during the past 30 years, particularly among young individuals. There is a significant social, emotional, and financial burden associated with the fact that 71 percent of suicides in India occur in people under the age of 44.

Public health organizations still have a difficult time preventing it. It is crucial to have a complete grasp of the many factors linked to suicidal hanging in that particular area in order to prevent such suicides. We conducted a prospective study in India that concentrated on the multiple factors connected to suicide hanging in order to pinpoint potential intervention areas. According to data from India's National Crime Records Bureau, a significant number of hanging cases are reported each year (NCRB). Suicidal behavior often accounts for the bulk of hanging occurrences. It's extremely rare for a murder to end in a

hanging scene. Crime scene examination on several key aspects is necessary to distinguish between homicidal and suicidal hangings.

To discover the truth, untouched data points must be examined after an autopsy. The purpose of this study was to identify the many factors that are associated with hanging suicide in India in order to identify potential intervention areas. fewer suicide attempts are made made with ceiling fans is the project's primary goal in order to address this issue.

II. METHODOLOGY

The DC motor or stepper motor receives power from the beam whenever someone tries to hang themselves. If the weight is greater than the set point weight, the fan rod begins to drop. Additionally, the alarm is activated and a message is sent to the specific guardians via GSM.

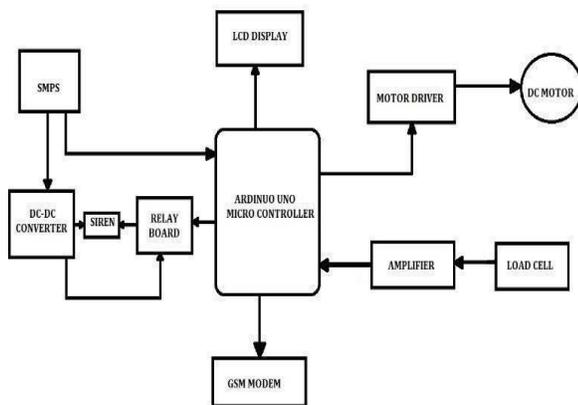


Fig.1. Block Diagram

The speed and mobility of the beam are controlled by the provided algorithm. Different registered cell phone numbers receive SMS alerts. The buzzer is turned on as depicted in fig. 1.

ARDUINO / PIC MIROCONTROLLER:

The Single-board microcontrollers and micro controller kits are developed and produced by the company, movement, and user base known as Arduino for the development of digital devices. Arduino board designs employ a variety of

CPU and controller types. To connect other circuits to the boards' sets of digital and analogue input/output (I/O) pins, a range of expansion boards, breadboards (for prototyping), and other boards are included. The boards contain serial communications interfaces, some of which may load applications through USB (Universal Serial Bus). Microcontrollers can be programmed using the programming languages C and C++.

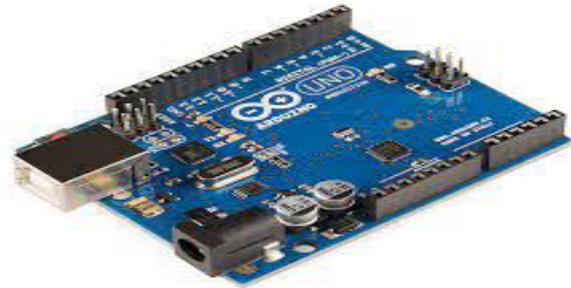


Fig.2: Arduino Board

FORCE /LOAD SENSOR:

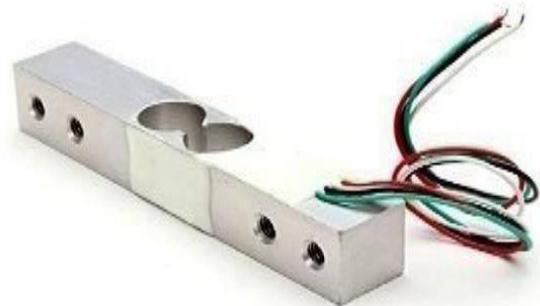


Fig.3: Load cell

A load cell is a force transducer, as depicted in Figure 3. It transforms a force—such as tension, compression, pressure, or torque—into a measured and standardized electrical output. The electrical signal varies in accordance with the force applied to the load cell. The three most common kinds of load cells are those that work with hydraulic, pneumatic, and strain gauge systems.

Measurements: 5KG

The output is rated at 2.00.15 (MV/V).

Utilizing the White, Black, Green, and Red wire connectors (-)

DC MOTOR – 12 V:



Fig.4: Dc Motor

Any motor that converts direct current electrical power into mechanical power belongs to the category of electrical machines known as DC motors. A 12v DC motor is compact, as shown in Figure 4, and reasonably priced. It is powerful enough to be employed in a variety of applications.

L293 dual H-bridge driver chip is the driver. runs on up to 24V DC Partially drive the peak current 1A/Bridge



GSM MODEM:

Fig.5: GSM Model

In Europe and other parts of the world, many mobile phone customers use the GSM (Global System for Mobile communication) digital mobile network. Figure 5 illustrates how GSM digitizes and compresses data before sending it

down a channel with two additional streams of user data, each in its own time slot.

AMPLIFIER Hx 711

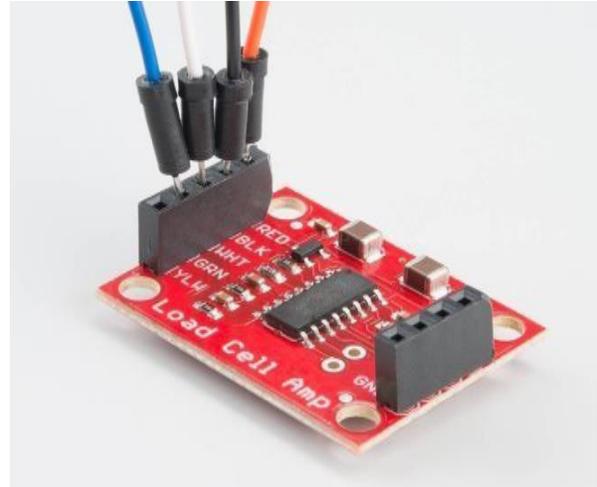


Fig.6: Amplifier HX 711

The A load cell and strain gauge are illustrated in fig. 6 and are utilized with the HX711 load cell amplifier to produce quantifiable data. A compact breakout board for the HX711 IC called the Spark Fun Load Cell Amplifier makes it simple to read load cells for weight measurement. The analogue and digital power supplies have been separated, and we've also added a 3.3uH inductor and a 0.1uF filter capacitor for the digital power supply. Need more still? Look at the All of the characteristics of the HX711 are present, but it also has a genuine I2C interface, additional library support, and no soldering is necessary.

A load cell and strain gauge are used in conjunction with the HX711 load cell amplifier to produce quantifiable data. A compact breakout board for the HX711 IC called the Spark Fun Load Cell Amplifier makes it simple to read load cells for weight measurement. You can get a few improvements that you requested by connecting the amplifier to your microcontroller! The analogue and digital power supplies have been separated, and we've also added a 3.3uH inductor and a 0.1uF filter capacitor for the digital power supply. ? Look at the All of the characteristics of the HX711 are present, but it also has real I2C functionality, additional library support, and no soldering is necessary..

A load cell and strain gauge are used in conjunction with the HX711 load cell amplifier to produce quantifiable data. You can quickly read load cells with the Spark Fun Load Cell Amplifier, a compact breakout board for the HX711 IC.

measure weight. By connecting the amplifier to your microcontroller, you will be a few changes that you expressly requested! The analogue and digital supplies have been split, and we've also added a 3.3uH inductor

Filter capacitor for the digital supply, 0.1uF.

A load cell and strain gauge are used in conjunction with the HX711 load cell amplifier to produce quantifiable data. A compact breakout board for the HX711 IC called the Spark Fun Load Cell Amplifier makes it simple to read load cells for weight measurement. You can link your microcontroller to the amplifier by There are a few adjustments in this Spark Fun Load Cell Amplifier that you explicitly requested! The analogue and digital power supplies have been separated, and we've also added a 3.3uH inductor and a 0.1uF filter capacitor for the digital power supply.

The two-wire interface (Clock and Data) is used by the HX711 for communication. The GPIO pins of any microcontroller should function, and many libraries have been created to make it simple to read data from the HX711. For more details, see the hookup guide below.

DC-DC CONVERTOR



Fig.7: DC-DC Converter

As shown in fig. 7. A circuit or electromechanical device known as a DC-to-DC converter modifies the

voltage level of a direct current (DC) source. It is a specific type of power converter for electricity.

We receive 12 V DC from our SMPS, but our PCB boards, such the GSM modem, require 5 V DC.

Therefore, to convert 12 V DC to 5 V DC, we utilize a DC to DC converter.

The required current is under 5 Amps.

MOTOR DRIVER

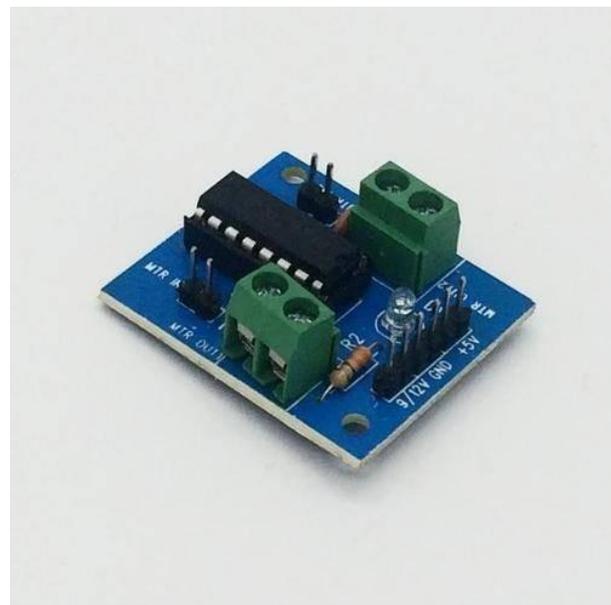


Fig.8: Motor Driver L293

As shown in fig. 8, the L293-based motor driver module has a high power rating and is ideal for driving both DC and stepper motors.

It makes use of the well-known L293 motor driver IC and includes a built-in 5V regulator that may be used to power an external circuit. This motor driver is ideal for robotics and mechatronics applications since it can control motors from microcontrollers, switches, relays, etc. It can direct and control the speed of up to two DC motors. Ideal for providing electricity to DC and Stepper motors that are found in robot arms, line-following robots, micro mice, and other devices.

The driver is the L293 twin H-bridge driver chip. utilizes up to 24V DC

Partially drive the peak current 1A/Bridge, Io

RELAYBOARD

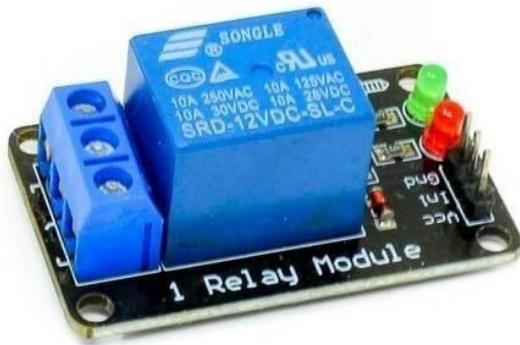


Fig.9: Relay Board

This is a driver for a single channel 12 volt relay board, as depicted in figure 9. This is a single-channel 12 volt relay board module that may be controlled by an ARM or an Arduino. The 1 Channel 12V Relay Board Module requires 15mA to 20mA for each unit to be controlled by an Arduino PIC AVR DSP ARM. Each requires 15 to 20 mA of control from an Arduino, PIC, AVR, or ARM. Each one requires 15–20mA.

III. PIN DIAGRAM

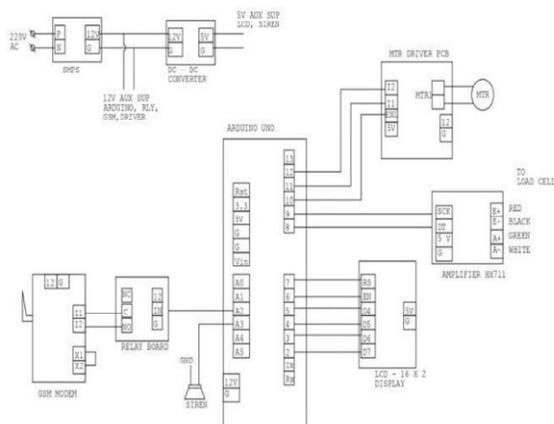


Fig.10: Pin diagram

IV. FLOW CHART

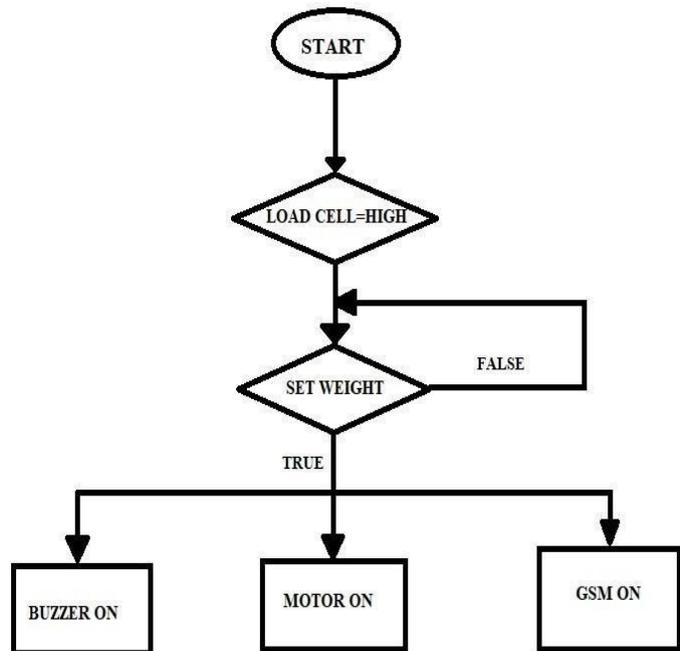


Fig.9: Flow chart of coding used in proposed work

V. RESULTS



Fig.11: Person tries to hang

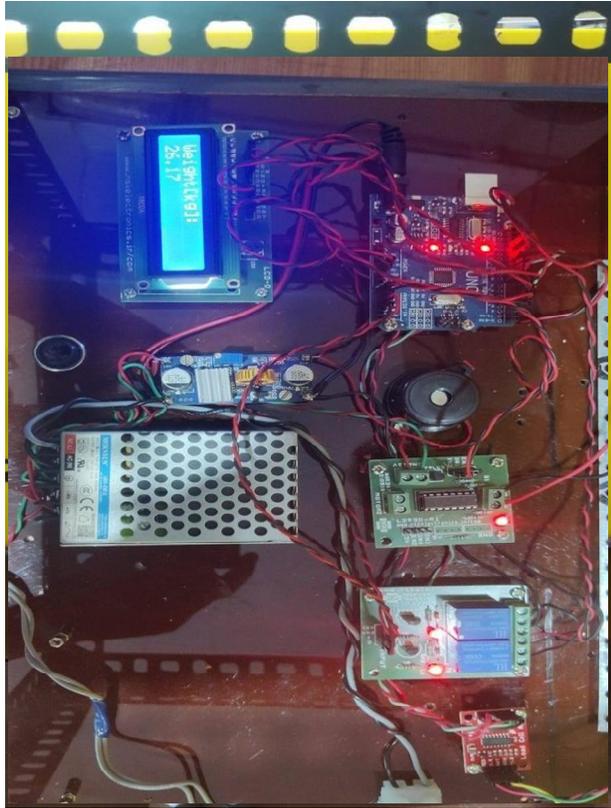


Fig.12: Lcd, Display the weight



Fig.13: Whole fan assembly landed down.



Fig 14. After removal of load push button is pressed fan comes to normal condition

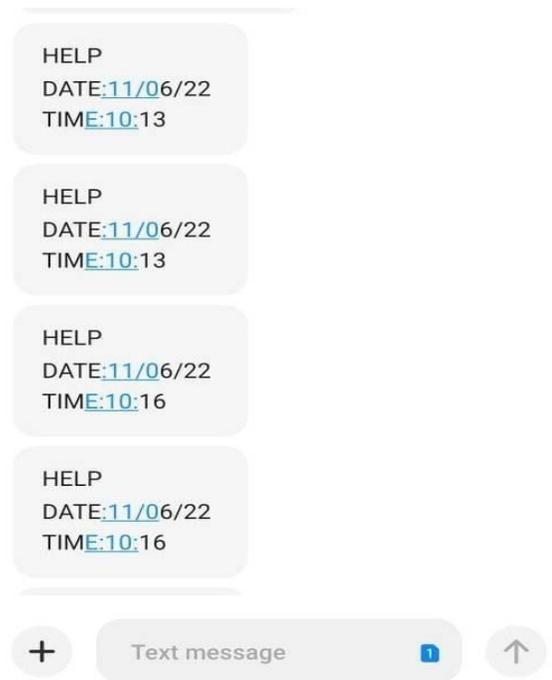


Fig15: SMS Alert sent to registered mobile numbers

VI. DISCUSSION AND PERFORMANCE ANALYSIS

Toggle switches can automate the up and down of a ceiling fan for cleaning purposes in the home, and someone tries to hang a force sensor. If the specified weight is exceeded, the load cell detects this and supplies power to the DC motor or stepper motor, which then causes the fan rod to descend. Additionally, the alarm is set off and a message is sent to the specific guardians via GSM. SMS notifications are sent while the beam's speed and mobility are regulated by an algorithm.

ADVANTAGES

- Prevents suicides from being assisted by using ceiling fans.
- PIR-based automatic ON/OFF control.
- Energy efficiency.
- Ease of expansion and system scalability.

VII. CONCLUSION

It is possible to successfully implement the prototype model developed using structured modeling as a Real Time system. Technology is constantly evolving as a result of key scientific discoveries and inventions in numerous domains. Additionally, the majority of the units may be created using a single piece of machinery and a microprocessor, which makes the system small and boosts its efficiency. Real-time applications can be used with the system by implementing components with a larger range.

VII. REFERENCE

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