SwiftSentry

There for you, Always…

A revolutionary product that detects emergencies in enclosed spaces

by

Troubleshooters~30

MOTIVATION

The motivation is driven by the need to create a safer environment for people in various settings, including homes, offices and public buildings.

To provide valuable assistance to individuals who may be unaware of a dangerous situation unfolding around them, giving them the opportunity to take immediate action or seek help.

To leverage technology to improve emergency response, minimize the impact of emergencies in enclosed spaces, and ultimately save lives.

BENEFITS OVER EXISTING COMPETITION

- Our approach does not involve capturing or recording visual information, making it non-invasive and addressing privacy concerns.
- It is not used as an equipment to be worn by an individual so there will be no discomfort to the person

BENEFITS OVER EXISTING COMPETITION

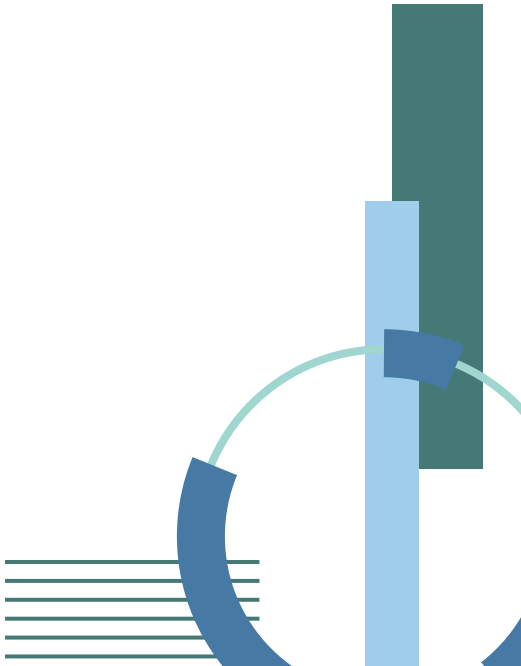
- Automated system and power-efficient.
- Reproducible
- Extendable
- Contactless

MyFitnessPal
Fitbit
Flo
Lifesum
Samsung Health
Peloton
Withings
Oura
WW
Dexcom
Coming soon

Process:

We followed a process that helped us analyse our each step to model the system:

1. Defined the system requirements
2. Sensor selection
3. Data gathering and understanding human body mechanism
4. Extracting of features required
5. Development of algorithm
6. Testing



DEFINING THE SYSTEM REQUIREMENTS

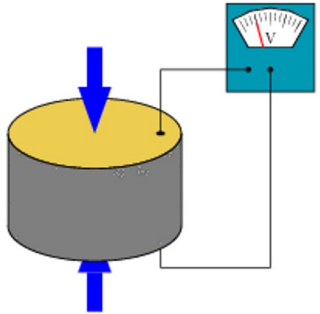
Environment

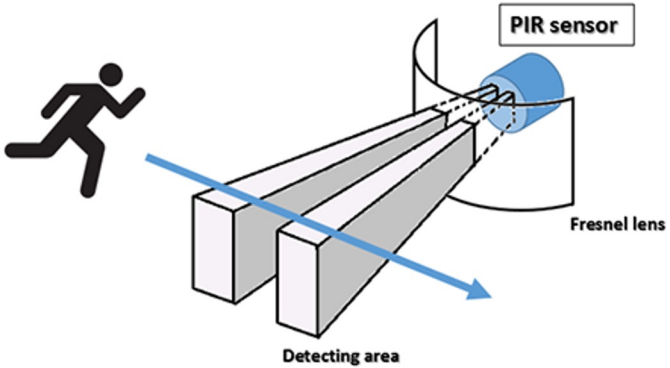
Target Group

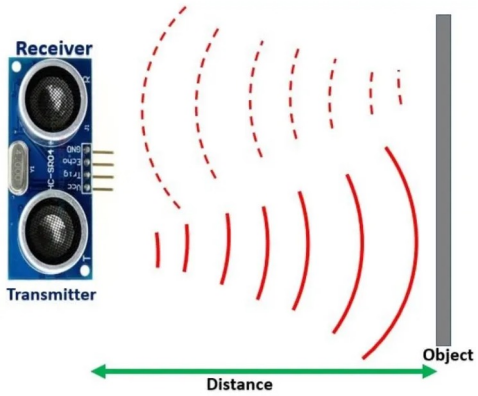
Privacy

PROPOSED SENSOR SELECTION

1. Piezoelectric sensor
2. PIR
3. Ultrasonic
4. Infrared sensor
5. Load cells
6. Photodiode







DATA GATHERING

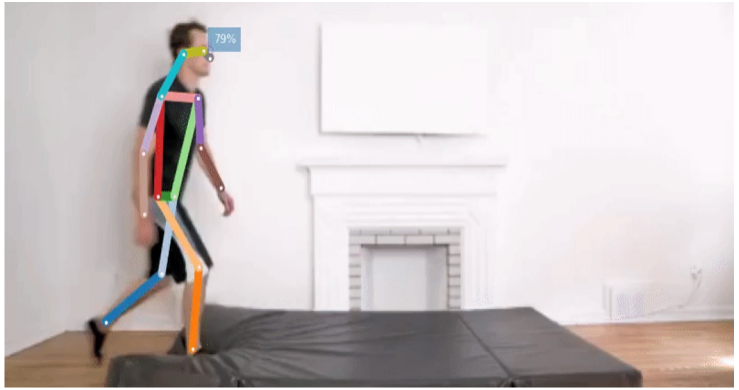
8.5 percent of elderly treated for falling

About 1.8 million Americans age 65 and older were treated in emergency rooms after falling in 2003, and about 13,700 died.

5/18/07 SOURCE: "Measuring Slipperiness: Human Locomotion and Surface Factors" AP

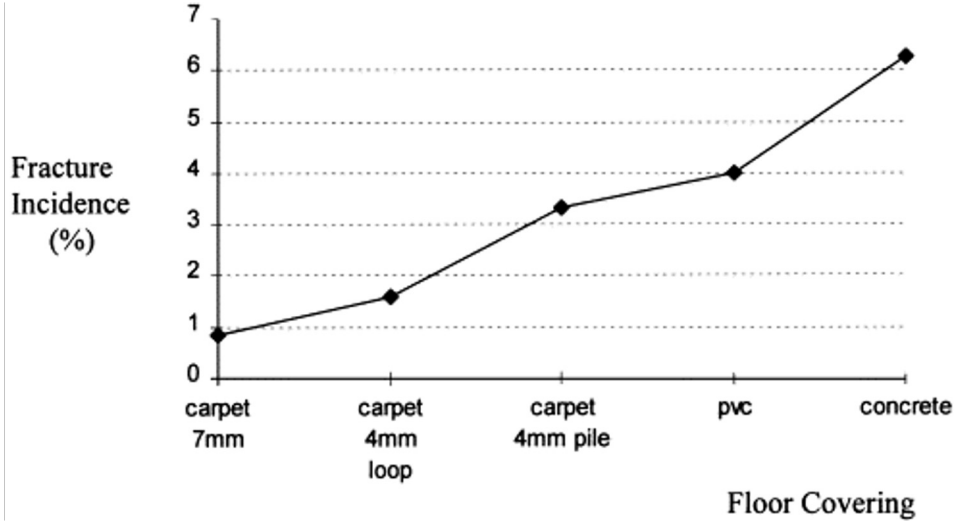
UNDERSTANDING HUMAN BODY MECHANISM

Knee Impact



Elbow Impact

MATERIALS FOR FLOOR



Extracting of Features Required

Ultrasonic

- Detection of distance of person from the sensor
- Potential detection of speed with which person is falling.

Piezoelectric Sensor:

- Detect the impact of the person falling

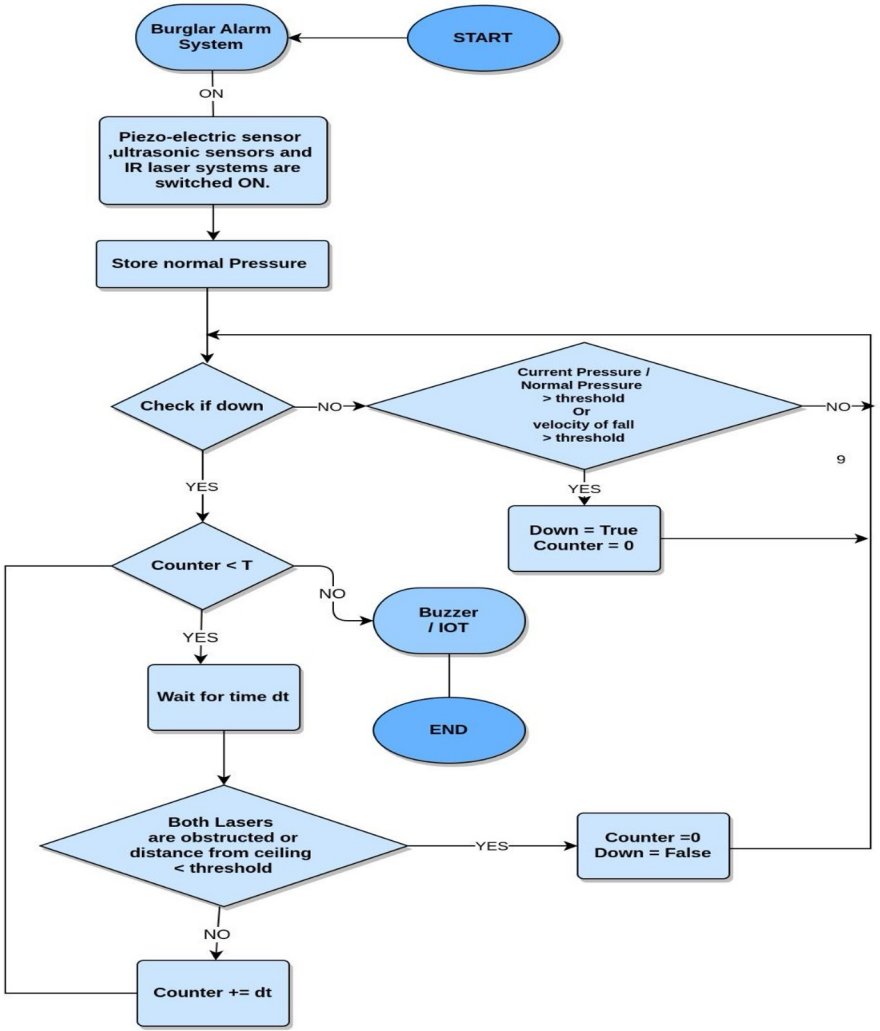
Laser & Photodiode

- In combination with the ultrasonic sensor to detect the approximate position of the person.

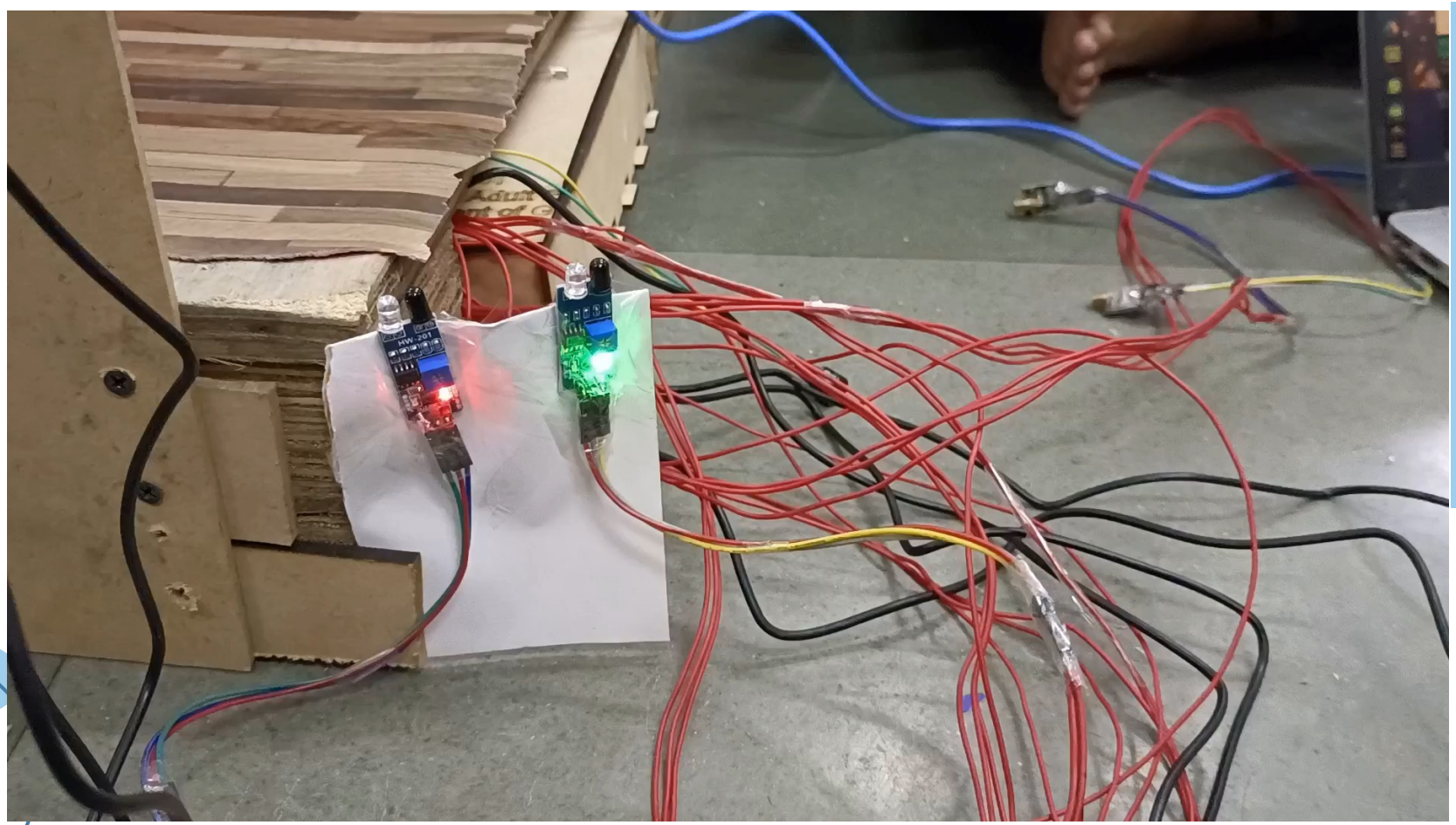
IR Sensor

- Detect the exit and entry of person.
- Detect the number of people in the room.

DEVELOPMENT OF ALGORITHM



CIRCUIT IMPLEMENTATION



SUCCESSFULLY TESTED!

FUTURE PROSPECT

The system can be expanded to:

- Detect suicide in enclosed spaces
- Increase safety for worker in enclosed space such as mining caves
- Information can be sent over the internet to the hospitals to request for immediate ambulance service by IOT
- Predict accidents using machine learning and AI with sufficient data is available

SWIFT SENTRY

There for you, always ...

"ABOUT 1.8 MILLIONS AMERICANS AGES 65 AND OLDER WERE TREATED IN EMERGENCY ROOMS AFTER FALLING IN 2003 AND ABOUT 13,700 DIED*"

A REVOLUTIONARY PRODUCT THAT, BESIDE DETECTING EMERGENCIES, ALSO PROVIDES....

- ZERO PRIVACY BREACH
- REAL TIME ALERT
- AUTOMATED SYSTEM
- ENERGY EFFICIENCY

*Taken from "Measuring Slipperiness: Human Locomotion and Surface Factors"

THANK YOU