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Arduino Based Message Receiving and Alerting Device

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Abstract: - Now days human safety has been compromised. According to the reports not only kids but, adults are also not safe. And Majority to these incidences can't be prevented because the messages are not timely conveyed to the emergency respond team. The Motivation behind this is project/device is to covey the required messages to the emergency respond team just with a click of a button irrespective of the location of the user with the help of internet.

Keywords: - Message sending Device, Raising an alarm, an Arduino Embedded System.

Introduction

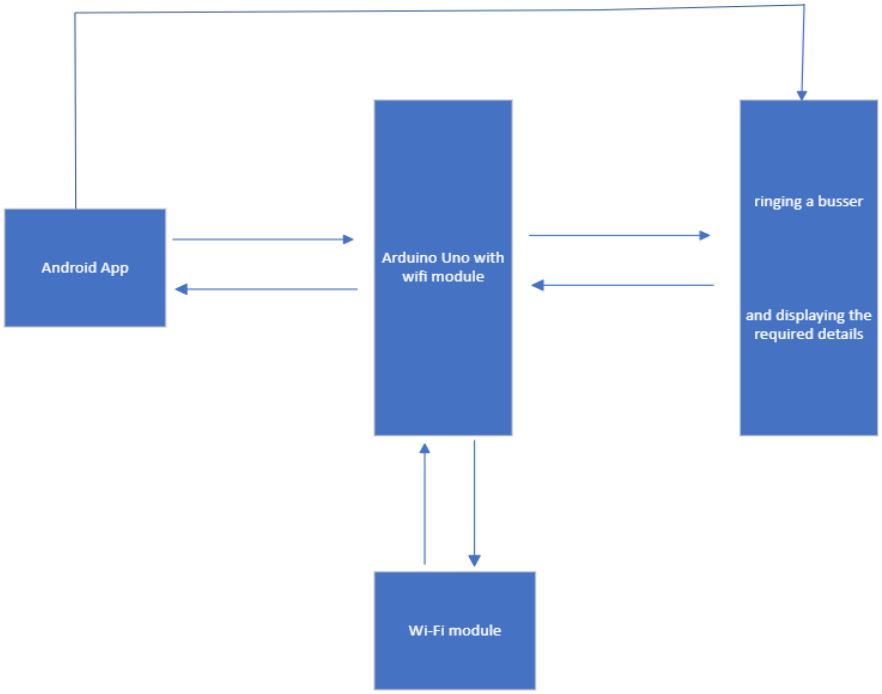
This project will connect a device which can be setup in any place (like emergency respond team, police station, etc.) with internet. Anyone with the help of a cellphone can send any message like alarm, help etc. This will use WIFI, so there is no need of distance bounding.

To facilitate the wireless connectivity, an Arduino based system will be put along with a WIFI module. This will enable the internet connection and all the devices can be connected and trigger a message/alert via internet.

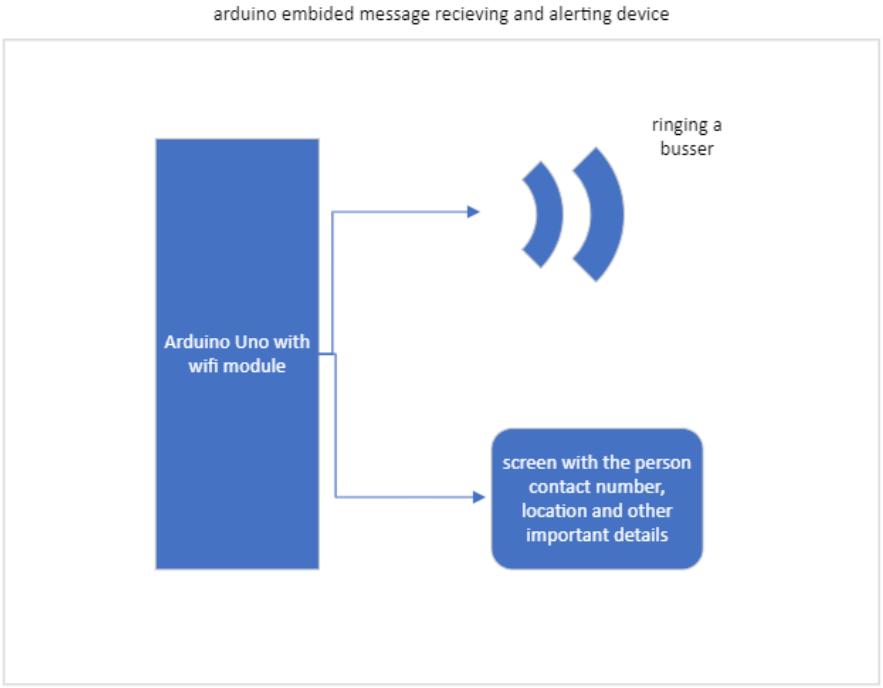
Currently, if any person needs to inform the any incident, they need to do a manual call to the police station, fire station or any other emergency number. But in some scenarios because of external causes the message is not passed correctly or not received correctly. So, the motivation behind this device is to automate and migrate the whole process/system on internet.

So that messages are timely conveyed to the required team, and they can take the required action.

System Architecture



Arduino Uno Receiver Architecture



Communication Method

There are several methods which can be used to deliver message through this device. These methods include:

- One of the most prominent methods is text message. As online chatting apps are used frequently so the message can be read on correct time. Also, these apps are fast so there will no delay in communication.

- In case of some emergency, voice method can be used to record message and deliver it. This method is fast than the previous one, and helpful in emergency.

- This method will not deliver the method in so clarity, but it is the fastest which is alarm. It will notify that something is wrong, and something must be done.

- It is one of the most prominent Arduino based projects. It enables to connect a device via internet. When the user clicks on emergency button on the mobile phone in device, the message will drop to all the appliances connected with it.

Device Required

The Arduino Uno is a microcontroller board on the ATmega328P. It has:

- 14 digital input/output pins (of which 6 can be used as PWM outputs)
- 6 analog inputs
- A 16 MHz crystal oscillator
- A usb connection
- A power input
- An ICSP header
- A reset button

These devices are needed to support the controller. This must be connected to a computer with a USB cable or power it with an AC to Dc adaptor, then it will be ready to start.

Results

1. Android/IOS app which required regular updates and customization is easy to implement.
2. Anyone can send a message independent of their location.
3. Highly cost-effective product which can be installed in mass. And the mobile application doesn't add any extra dollars to the whole product.

Constraints

1. Internet connectivity: - This product is completely dependent on the internet. Though it doesn't require a lot of GBs but fair supply of same is still required.
2. Power supply to the receiver: - 24*7 power supply is needed for the receiver. If it is disturbed for a second, then no one can request for the help.
3. Uno board has its own Arduino software, which provide us a leverage to override our existing code with an updated one.

Conclusion

With the help of this device, government can install it in each police station. So that if any urgent help is required then the required people can attend that problem within time. This device can be also used in big factory or industry who is equipped with internet so that if any information needs to be shared then all the authorized people can do from any location.

Future Scope

Currently the message is sent only form mobiles but down the line we can install it in smartwatch. Moreover, if required we can make it compatible in a way such the message can be send through voice only with the help of NLP (Natural Language Processing).

References

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