IOT BASED INFORMATION SYSTEM FOR SHIPS & CARGO

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***Abstract*— The main aim of this paper is to avoid or be aware in having the unconditional surcamstances of accidents of ship using information system implementionted through internet of things IOT. Raspberry Pi 3 is use as main controller and embedded web server for information access system. Arduino UNO R3 is use to interface the Raspberry Pi with GPS. We suppose to develop a web page using PHP show in all sensor parameters/safety alerts/GPS coordinate of a ship. Sensor like waterproof temperature sensor DS18B20, MQ135, ADXL345 are used for safety measures. GPS is use to track ship at any time/anywhere using information access system. This will ensure not only safety of ship but also the people travelling through ship. This integrated system will be a real time operating system.**

***Keywords*— IoT, Webserver, Raspberry Pi 3, Webpage (php based)**

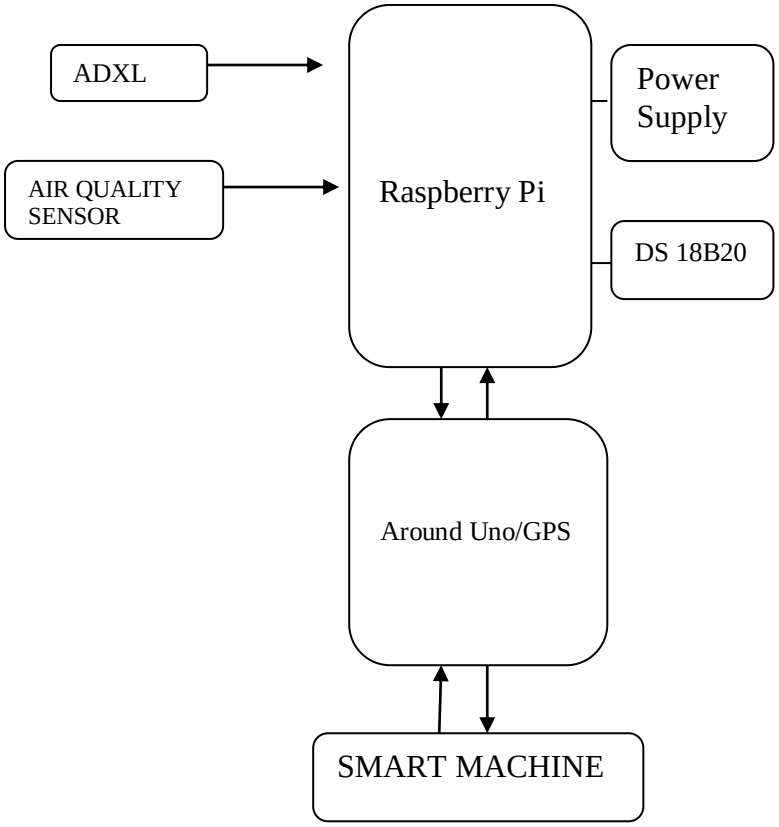
INTRODUCTION

IOT devices are embedded devices, and as such, the circuit design of each device must take into consideration operating constraints, such as: Environmental conditions. The type and number of sensors and actuators attached to the device. That the volume of data to be collected and transmitted. The Internet of Things (IOT) is a global system of interconnected physical devices that deliver data via the Internet, and the IOT is transforming in the way we live and work. IOT devices have been widely adopted across a range of industries, including healthcare, manufacturing, automotive, retail, and building automation, just to name a few. Businesses are leveraging data from which connected devices to increase operational efficiency and to provide improved value and the experiences to their clients. With in the pace of IOT adoption rapidly increasing and with in the number of connected devices are in the billions already, consider demand for skilled developers which are able to deliver I OT solutions continues to rise.

Developers which want to make the most of the opportunities of IOT should foster skills across a range of key topic areas including:

- Hardware
- Networking
- Application design
- Application development
- Security
- Business intelligence and data analytics
- Machine learning and artificial intelligence (AI)

SYSTEM DEVELOPMENT DIAGRAM

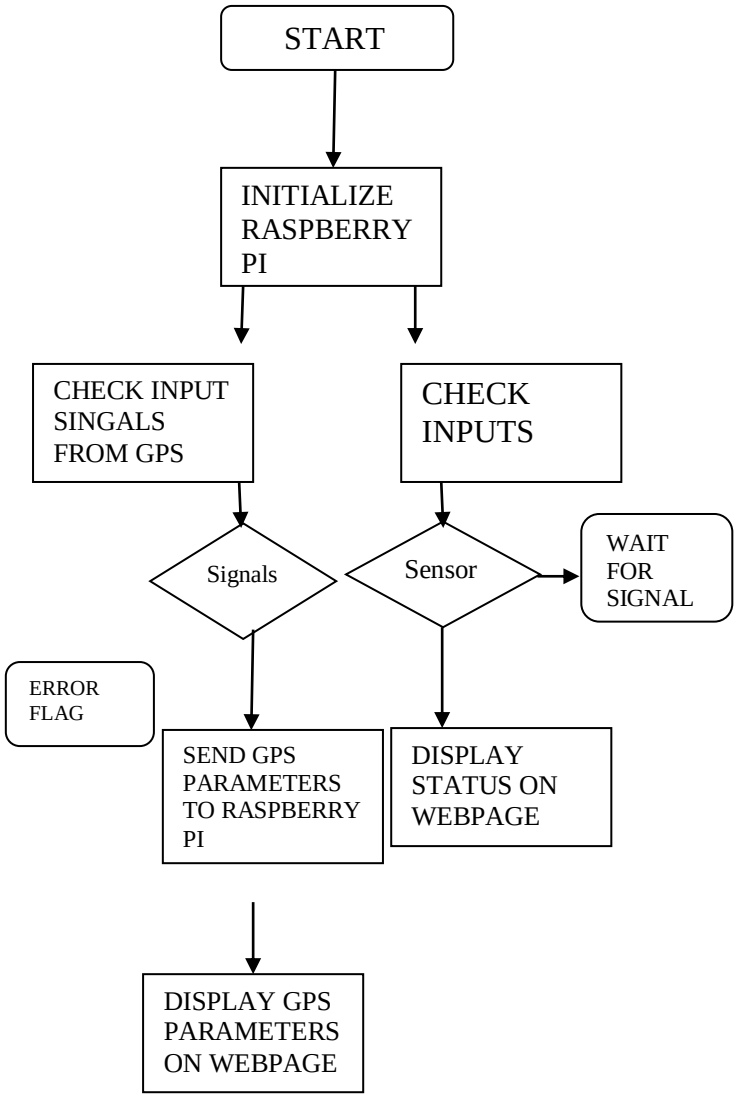


In proposed system the following parameters are used

- Raspberry pi 3
- Arduino UNO R3
- ADXL345 Accelerometer
- MQ-135 fuel leakage sensor
- DS18B20 Waterproof temperature sensor
- GPS
- Alarm system

The system which uses different sensors like fuel leakage sensor, 3 axis accelerometer sensor, waterproof temperature sensor & GPS for the tracking purpose. Raspberry Pi 3 is in use as main controller and embedded web server for information access the system. Arduino is used to interface GPS with Raspberry- pi. We suppose to develop a web page which is using PHP show in all sensor parameters/safety alerts/GPS coordinate of a ship. Firstly raspberry-pi check signal from the various sensors and depending on situation it will take action. If gases are present there then the coil of MQ-135 heats the output voltage varies then RPI turn on alarm which is on ship and also it shows status of presence of the gas on monitoring web page. And also with the sea water temperature is to be measured using waterproof one wire temperature sensor which shows water status as high and low depending on threshold point 32oC. Also accelerometer gives the minimum maximum value of tilting of ship which will help to control collapse of ship. GPS is used for giving location of ship which is under control by giving latitude & longitude type values on the web page. GPS is to be used to track ship at any time/anywhere using information access system. This will ensure not only safety of ship and cargo but also that the people which are travelling through ship can be traced as well. This integrated system will be a real time operating system and low cost but qualitatively very efficient.

WORKING FLOW DIAGRAM



CONCLUSIONS

The IOT based system is towards the efficient technology which is used by most of the transport system so that to avoid accident of ship and cargo. That the proposed system is to be used to access to data sensed through sensor on ship which is to be stored on cloud using IOT based technology devices in the control room or on smart phone. We concluded from this review paper that it to be essential to integrate the IOT based information access system and the sensor with embedded system. For prototype model we used safety sensors. For information access system we used PHP language for IOT purpose. We can implemented web server using Raspberry pi. Sensors are configured with embedded system using the python language. The proposed system would be one step towards efficient & effective application for the purpose of ship safety and monitoring.

REFERENCES

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