Tracking the prisoner location and escape prevention

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ABSTRACT

The main aim of the project is to track the prisoner whether he or she is inside or outside the prison by using RSSI (Received Signal Strength Indication) and using GPS. The location of the prisoner can be viewed by jailor wherever and whenever by using IOT device. If the prisoner is trying to move outside the jail it automatically indicates through buzzer in the control room based on the signal strength. When the signal strength is low the device automatically activates the neuron simulator. If the prisoner is trying to break the module is sensed by the vibration sensor, it will automatically produce alarm in the prisoner section and control section.

Keywords— Prisoner Location, IOT, RSSI, GPS, Latitude, longitude, Neurostimulator.

1. INTRODUCTION

Existing researches on location tracking focus either entirely on indoor or entirely on outdoor by using different devices and techniques. Several solutions have been proposed to adopt a single location-sensing technology that fits in both situations. This paper aims to track a user position in both indoor and outdoor environments with minimal tracking error. This system overcomes the disadvantages of the previous tracking system as there are two tracking methods available in it the RSSI and GPS. The RSSI system is used to track the prisoner inside the prison more effectively by the wifi range. The RSSI is used in inside because in some cases the GPS network will face too much of disturbance and can result in the tracking failure for a particular period of time. As the wifi range covers only the prison we have moved for GPS in order to track the prisoner incase of escape with the help of latitude and longitude. And we have added another feature the incase the prisoner tries to escape the prison a neuro stimulator is been embedded which stimulates an instant shock of voltage to faint him. incase if it does not work in certain cases then only we have to move for GPS. And if the prisoner tries to break the system a vibrations sensor is been embedded

which gives intimation to the jailer and the neuro stimulator will be stimulated.

2. RELATED WORK

In this paper, a global localization problem of a robot moving in a known environment is considered. The environment is equipped with a relatively sparse set of passive RFID (Radio Frequency IDentification) tags. The robot can detect the presence of the tags when traveling in their proximity and combines this information with the one given by other sensors (e.g. odometry). The RFID measurements are characterized by a highly non Gaussian noise: for this reason in the literature Particle Filter (PF) methods have often been used to fuse these data with the measurements coming from other sensors. In this paper, a different approach is pursued, based on the observation that RFID readings can be considered as noisy quantized measurements of the pose of the robot or as noisy dynamic constraints on the pose itself. This allows to exploit the rich literature on Kalman quantized filtering or Kalman constrained estimation, to realize reliable methods with a satisfactory performance which require a computational time significantly lower with respect to the one needed by a PF. Simulative and experimental results will be reported to illustrate the proposed methods.

This paper presents a global localization system for an indoor autonomous vehicle equipped with odometry sensors and radio-frequency identification (RFID) reader to interrogate tags located on the ceiling of the environment. The RFID reader can measure the phase of the signals coming from responding tags. This phase has non-univocal dependence on the distance robot tag, but in the considered frequency, it is really sensitive to a change in the position of the robot. For this reason, a multihypothesis Kalman filtering approach provides a really satisfactory performance even in the case that a very small density of tags is used.
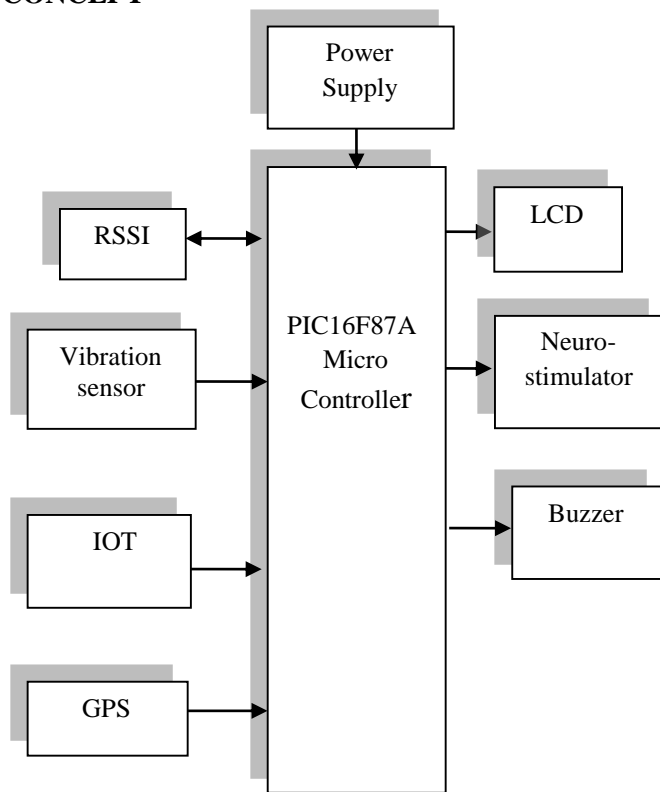
3. BLOCK DIAGRAM FOR OUR PROPOSED CONCEPT

Fig. 1: Block diagram of the proposed work

4. DISADVANTAGES OF EXISTING SYSTEM

The target may escape from the CCTV camera range. It uses a lot of man power and the GPS system has certain problems that due to network failure or signal scattering it may result in target failure for a particular period of time.

5. EXPERIMENTAL RESULTS

Whenever the prisoner tries to escape from the prison it will automatically stimulate the vibration sensor and the buzzer will produce the sound, the neurostimulator will make the prisoner fainting. The GPS will intimate the longitude and the longitude positions whenever the prisoner tries to escape from the prison. The IOT continuously update the data to the control room and it will be viewed by the jailors whenever wherever he wants. The sample output screen for the proposed sustem is.

Fig. 2: Output of the proposed system

6. ADVANTAGES

In this system, RSSI ZigBee is used to track the prisoner location at any time. The RSSI ZigBee technology helps in reading the prisoner which tells the current location. It has a very fast response when compared to others and it is economically feasible.

7. CONCLUSION

A prison is a place where criminals are been punished. Law is equal to everyone. Due to the lethagical security reasons, many prisoners find an easy way of escaping and some people try to threaten their witnesses or create fear to the public that nothing can go against and he is above the law. This will also make other criminals also fearless, so this will create a serious problem in society and may result in law and order problem. So we have designed this system reducing so many disadvantages from the previous security systems. This is an IOT system of tracking prisoner's location which has a greater advantage that the prisoners can be monitored 24*7 from anywhere, anytime, anyplace. Prisons that are built in isolated places like ilands, forest etc...Makes the living of officers very difficult because they are also have to work 24*7 isolated. It affects their livelihood badly in order to reduce the man power and providing a better livelihood to those jailers we have developed this project. With this system the prison can be monitored with less number of jailers or even it can be monitored from a different place with no jailers. Because they can safely monitor them from a different place and the jailer will get an alarm if the prisoner tries to escape or break the system and he will get the current location of the prisoner even if gets out of the prison. So it will be very easy for the jailer to monitor.

7. REFERENCES

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