1. Abstract

- Primitive classification of medications on shelves by some pharmacies in underprivileged areas.
- Long queues for medication distribution due to traditional system.
- Difficulties to keep medications at a fixed refrigeration temperature.

2. Objective

- Proposing a simple and reliable approach for medication distribution and pharmaceutical refrigeration temperature control.
- Cheaper solution for underprivileged businesses.
- User-friendly graphical user interface, based on touch sensor, adequate for even IT illiterates. All records on cloud.

3. Design

- **Intel Galileo board** as brain connected to sensors and cloud.
- **Touch sensors**: used to select a specific shelf of medication.
- **Potentiometer (pot)**: loop through product within a shelf.
- **Relay module** triggered the refrigeration system when the sensor observes temperatures within certain range.
- **Xively and Zapier** used for cloud repository and online data visualization.

4. Implementation

System divides into 2 subsystems:
- Medication distribution monitoring (MDM) for medication distribution and management
- Temperature Control (TC) for monitoring the refrigeration temperature of diverse medications.

5. Results

Online monitoring of medications Meds1 and Meds5 quantities from different shelves

Visualization of temperature control within pharmacy

Alert notifications

Serial monitor GUI recording all transactions

6. Discussion and conclusion

- Implementation costs cheaper than software-based solutions.
- Reduces paper based work within traditional pharmacies.
- All transactions are recorded on cloud which facilitates monitoring, auditing and accountability.
- System based on electronic sensors making the usage easier and reduces risk of making mistakes.
- Xively and Zapier helps protecting the system from online hacking and other bugs.
- This system shows once more the importance of IoT to reach a smart world. But there is still a long way to that goal.

7. References