## **Idea/Approach Details**

Ministry Category: Department of Post, Ministry of State(IC) of Communications
Problem Statement: Mechanisation of parcel sorting at parcel processing centers

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#### **IDEA/SOLUTION PROTOTYPE**

- The problem of mechanisation of parcel sorting can be solved by generating the dyanamic barcode/Qrcode and providing pincode based primary sorting and hybrid secondary sorting to generate a IOT based put to light solution.
- Intially each parcel will given a dyamamic Qrcode/barcode which is mapped to details of parcel stored in database ex.priority(if any),pincode,full destination class of parcel etc.
- Then primary level sorting will take place on the basis of large parameters like pin code, weight to classify the large chunks of parcels into small groups for secondary level sorting.
- Now , in secondary sorting deeper parameters as full destination of parcel will be used for faster result Hybrid Sorting Algorithm will be used.
- In secondary sorting by scanning barcode/Qrcode of a parcel andfetching its mapped details of destination and for that destination we have particular bag /cartoon having bag\_id.
- That bag\_id corresponding to each parcel will be fetched from database and this id will work as input for IOT(using Arduino) based hardware sysyem that will glow LED corresponding to that id and the parcell can be placed into that bag directly.
- For priority based parcells other data structures as Priority Queue can be used in addition which have complexitites only range of logn.

### TECHNOLOGY STACK

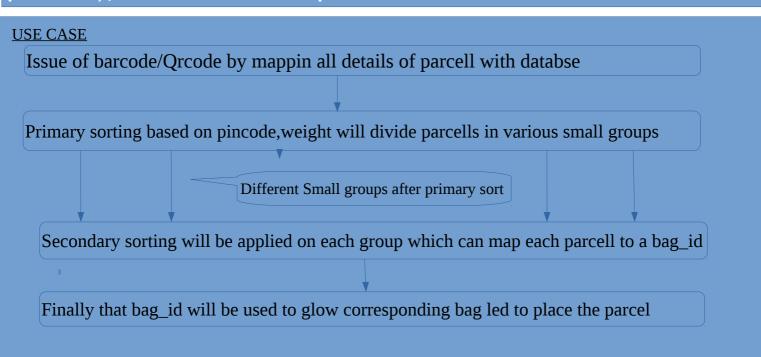
#### **SOFTWARE**

Database: Mysql (for having mapped details and bags information).

Php (framework) for backend (i.e. code generation, database management)

#### **HARDWARE**

IOT using ARDUINO(cross platform,less cost), Barcode/Qrcode scanner (already available at parcel hub), LED's for final visual response.



# STOPPERS / DEPENDENCIES

Requirement for various external hardware is required. For high performance algorithm may become complex