KUMARAGURU college of technology
character is life

FORGE
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Innovation Proposal

Ideation Sprints | Smart walking stick

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BONAFIDE CERTIFICATE

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(Autonomous)

Affiliated to Anna University, Chennai

This is to certify that the project report, entitled **croud controlling in metro stations "** is a bonafide work of Archana , Arvind , Asfaaq Moideen , Anjana prasad , Hari prasad , Dharun submitted in partial fulfilment of the requirements for the **Innovation Sprint of Innovation practicum**,(Engineering Clinic-Project Based Learning Framework) Cohort II done during the EVEN Semester 2023-2024 of II[nd] year B.E./B.Tech. Degree Programme offered by Kumaraguru College of Technology (Autonomous), Coimbatore- 641049 -Affiliated to Anna University, Chennai.

FACULTY MENTOR(S)

DECLARATION

We Archana , Arvind , Asfaaq Moideen , Anjana prasad , Hari prasad , Dharun declare that the project report, entitled " **crowd management in metro station",** submitted to Kumaraguru College of Technology in partial fulfilment of the requirements for the Engineering Innovation ~~Sprint~~ of Innovation practicum, (Engineering Clinic -Project Based Learning Framework) Cohort II done during the EVEN Semester 2020-2024 of IInd year B.E./B.Tech. Degree Programme under the guidance of Aditi Nayak of Kumaraguru College of Technology (Autonomous), Coimbatore- 641049 -Affiliated to Anna University, Chennai.

Signature of the Candidates

Innovation Brief

Abstract

+ *Describe a brief summary of the innovation in 200 words. Include the problem description & solution exploration*

In our day to day life metro trains plays an important role but it also tends to take innocent lifes. The major cause for this accidents are peoples ignorance and poor croud management. If croud management works perfect lots of human life can be saved and the accidents can be reduced in future. Human lives are so precious and it is not acceptable to lose them due to such silly reasons. An country's economy greatly depends on human resource. The existing solutions for this problem is manual procturing .But the barriers are so much like bribing, etc .So our solution helps to reduce accidents that occur in meterostations.It can also help to control the croud.it assures safety to the passengers .It is quite reliable and automated.

#1 Problem Statement & Significance

+ *Describe the problem statement as it is experienced in the real world. Also, provide more details of the primary root causes of the problem, and explain briefly what is being done today to solve the problem.*
+ *How severe the problem impacts or affects the beneficiary?*
+ *How widely is the problem encountered in its most serious/critical from within the universe of beneficiaries?*
+ *Explain why you have chosen this problem and why it is important for you to solve this problem and not other problems.*
+ *Describe briefly the social impact, economic gains, or positive changes related to solving this problem.*

If croud management works perfect lots of human life can be saved and the accidents can be reduced

To ensure that a large gathering of people is controlled in an orderly and problem-free manner

A Steady flow of crowds. preventing excessively dense crowds.

Effective crowd management measures to increase the safety and throughput in train and metro stations.

#2 Target User and Use-Case(s)

Passengers who travel day to day life.
Central and State Government
Public crowded areas.
Time utilization ,increasing reliability , maintains punctuality ,increases comfort, decreases waiting time.

#3 Expected outcomes or gains

+ *Describe the benefits in terms of measurable outcomes or gains from solving the problem.*
+ *Explain what makes this a problem worth solving, by quantifying the outcomes or gains.*
+ *Explain those specific gaps/challenges in the current solutions that have to be addressed/overcome.*

Lots of human lives can be saved by implementing this project.

Accidents can be reduced.

The congestion and crowd can be controlled in metro railway stations.

The public can be made to realize the importance of time.

#4 Solution Concept *(Proof of Concept/Minimum Usable Prototype)*

+ *Explain how your solution solves the problem in this specific use case.*
+ *Explain how your solution delivers the outcomes or gains expected by the target user, and how it can be measured and proven.*

- Separate IN OUT pathway with one person allowed to get in and out at a time.
- Only certain members allowed for a limit of time.
- Due to poor crowd management in Metro Stations ,commuters tend to miss their trains and may prone to some injuries
- To avoid these situations our solution plays a vital role.

#5 Utility (Features and Functionalities)

+ *For the target user, you have chosen, describe the specific use case you have selected to test a prototype of your solution.*
+ *For this specific use-case describe the most important outcomes, gains to be created or pains to be relieved as expected by the target user.*
+ *Describe the minimum set of features and functionality required to meet the user's expectations, and to convince the target user to use and test your prototype.*
+ *Explain how you have met the minimum expectations of the target user to accept your solution as being better than the current alternative(s) available.*

Time consuming is reduced by the orderly manner of entry and exit.

Rush can be avoided by not allowing everybody into the station.

Time delay is drastically redued so that people can realize the value of time and plan accordingly

#6 Usability & Deployment Constraints

As it is a large scale project it need some central and state government support to authorize it .

1.Cost : 1500-2000 rupees
2.Maintenance : Rare cases when the system malfunctions
3.Integration : Some time is needed to learn to use it like all new technology.
4.Resources: Simple and cheap sensors, wires and Arduino microcontroller.
5.Accessibility: Available for anyone
6.Risk perception: Little to non.

#7 Technology Selection/Application

+ Describe how the selection of technology and its application is most relevant to achieving the desired Utility and to overcoming the Usability/Deployability constraints, yet completing the MUP development process in the shortest time and with the lowest cost. Indicate specific ways in which existing technologies shall be further advanced or ways in which technologies shall be developed to overcome current gaps to meet the needs of the MUP concept

The technologies we used are :

Sevo motors
nfrared sensors .
Micro controller audino ESP 8266

With the help the Ir sensors we can count the number of people wo enter and and exit the station.

The micro controller is coded in such a way that it counts till it reaches the limit. When the respective count is reached the servo motor closes the door and a buzzer starts to alarm till a persn exits the station.

ANNEXURE

+ *Give the final version of Forge Innovation Toolkit canvas*

#1 Problem Validation & User Discovery Canvas

#2 MUP Challenge Brief Canvas #3

Value Proposition Canvas

#4 VPC Activity Guide #5

VP Statement Guide

#6 MUP Concepts Generation Canvas #7

MUP Concept Assessment Canvas #8

MUP Tech Canvas