A Product By

KRYPTON AI TECHNOLOGIES PRIVATE LIMITED

Startup incubated at

B-NEST SMART CITY, Bhopal

# “KRYPTO PARK”
# An Ai-Based Smart Parking Management System

A complete solution to all parking management problems into one System.

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# ANNEXURE A

# PROPOSAL

## Problem Statement:

As we know, the rapid urbanization and increasing population of the cities in not being matched by the pace of innovation and development of infrastructure that can cater to the needs of such populace. Capital city Bhopal is one of such growing cities. One of many such problems is related to parking space management in city, especially in the areas of heavy traffic.

Until now many attempts have been made to manage parking space but most of those solutions were manual operation of the parking space, which is very inefficient, time consuming and costly. Moreover, various parking spaces in the city are managed separately which require lots of infrastructure and man-power, and it is still not very convenient for public. In this era where technology is prevailing in every field, there is still lack of a proper technical solution for all parking related problems.

Hence, there is a need for a Smart parking management system that can solve this problem and bring forth a unified solution that benefits the government authorities as well as the public.

**Currently use of manual operation and management of parking space leading to following problems:**

- **High operation and maintenance cost.**
- **No transparency in revenue collection.**
- **Difficulty in finding parking space in city.**
- **No way to check the availability of parking slot before entering the parking space.**
- **No unified platform (web application or mobile app) for all the parking space in the city.**
- **No pre-booking options for parking.**
- **Mismanagement of parking leading to inconvenience for the public.**
- **Mismanagement and long entry time leads to congestion or jam on roads near parking space.**

# PROPOSED SOLUTION

In order to solve the above-mentioned problems, and to introduce a smart way to manage and operate parking space in the city, we propose an Ai-Based Smart Parking Management System, we call it ***"KRYTPO PARK"*** which is a state-of-art, made in India parking management system that aims at bringing all the parking related services and operations on one unified platform as well as automate the parking. This system is designed in a way that it requires little infrastructure change and low cost.

The Smart Parking Management System includes:

- **Hardware infrastructure** for the parking that includes: cameras, boom-barriers, poles, cable connection, and other accessories for proper working of system.
- **Smart Parking Management System**: That is an *Ai-based system* that will control the whole parking space for automated operations.
- **Unified Parking Management Application**: This is a centralised web application to operate and manage all the parking space under our Smart Parking Management System. It can be accessed from anywhere anytime with proper authentication so that the government authorities can monitor the current situation of any parking space.
- **Parking Mobile Application**: This is an easy to use, user friendly mobile application that will make it easier for public to find and book parking space in advance. This application will show parking spaces available in the city and live slot availability in them, with an option to book a parking space in advance to reduce waiting time.

# WORKING OF OUR SYSTEM

Our Smart parking management system uses Ai and cameras to identify vehicles and number plates. It also detects the slots available in parking space and keep track for billing.

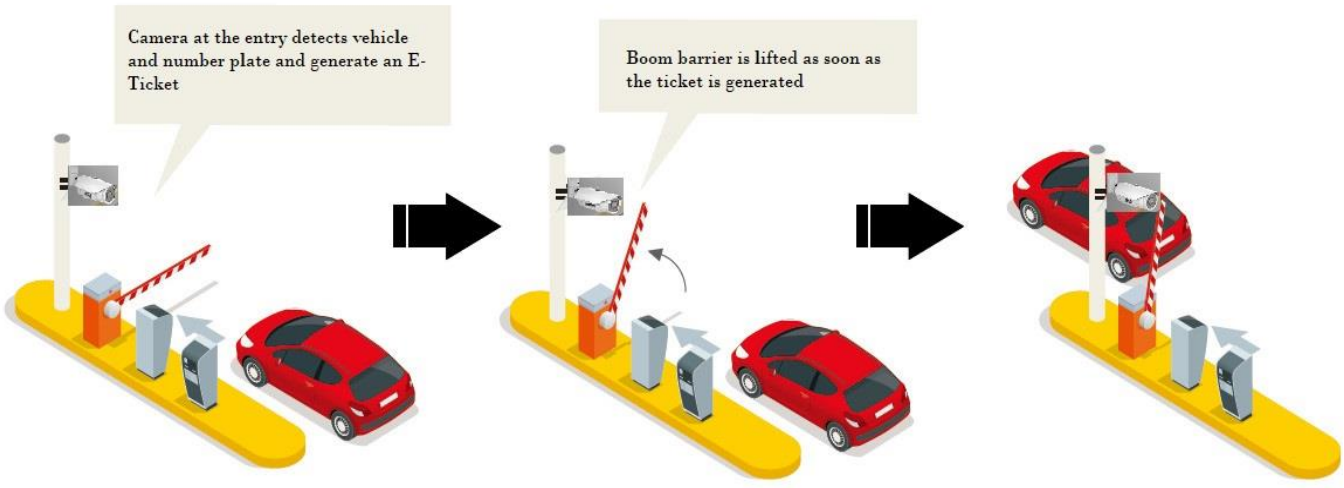
**On entry:** When a vehicle arrives, it can check the available number of slots on the LED display board outside, the Ai model using camera feed detects the vehicle, read its number plate and generate an e-ticket that is stored in the central database as well as sent to the customer via mobile number or the mobile application. As soon as ticket it generated boom barrier will open automatically.

While the vehicles are parked in parking space the camera installed there keep a track on them counting the occupied and unoccupied spaces, this data is continuously synced with the central server and database, so that anyone can check parking space availability accurately, from anywhere, at any time. This increases the transparency in the process.

**On exit**: System uses another camera to read the number plate and checks the database for entry time and calculate the bill accordingly, which can be paid digitally via debit/credit card/UPI/QR code etc.

Placement of cameras at entry and exit is in such a way that till the car reaches the barrier, its ticket is already generated so barrier will open on entry making the whole process even faster.

All the e-tickets generated will be stored at parking site as well as at the server which will be synced continuously. So that at any time, authorities can check the revenue or operations via dashboard. This increases transparency. Also, in case of connectivity issue or any other problem in the systems, parking operations will run normally and tickets will be stored locally and synced when connection is retrieved. This makes system robust and fault tolerant.



# FUNCTIONALITIES

## WEB APPLICATION/DASHBOARD:

This web application can be used by authorities with proper authentication to monitor the parking management system and by public to view some basic information from anywhere, anytime, on any device. This will increase the transparency in operation of parking spaces.

**The main functions of this dashboard are as follows:**

### For Authorities:

- **To check parking spaces in city.**
- **To check parking capacity.**
- **To check occupancy for selected period of time, with infographics about the past trends and future trends.**
- **Revenue generation by selected parking spaces in selected period of time (daily, weekly, monthly, annual, etc.)**
- **Parking operation and management staff, their identities, salaries, attendance, etc.**
- **Performance charts.**

### For Public:

- **To check parking spaces in city and navigation.**
- **To check parking capacity.**
- **To check parking space availability in selected parking space.**
- **To check nearby facilities and amenities.**
- **Parking charges.**
- **Parking Slot booking.**
- **Parking operation and management staff names identities.**
- **Rate parking experiences.**
- **To raise complaints.**
- **To review the status and resolution of the complaint.**

## MOBILE APPLICATION:

This mobile application can be used by public for following things:

- **To search parking spaces in the city and navigation.**
- **To check slots available in selected parking space.**
- **Pre-book a parking slot.**
- **Digital payment for pre-booked slot.**

- **Extend the booked parking time if needed.**
- **To raise any complaint and review its status and resolution**.

# UNIQUE SELLING POINTS

1. **Fully Automated Parking Management:**

   The parking space is operated by our Ai-based smart parking management system with minimum human intervention.

2. **No dedicated cameras required:**

   Vehicle detection, number plate detection, or slots detection all of this can be done using our AI with only one type of cameras, i.e., normal CCTV surveillance cameras.

3. **Lesser Infrastructure and Manpower required:**

   The use of Ai in our system helps us achieve all the required features using only normal CCTV cameras:

   - Lesser number of cameras required and existing cameras can be reused
   - Lesser Poles and mounting for the camera required.
   - No extra sensor required other than camera
   - Lesser number of processing unit required.
   - No dedicated monitoring system required.
   - Minimum to no staff required for management.

4. **E-ticketing system:**

   Completely digital and paperless ticketing process, hence ***no requirement for ticket generation machine*.** Saves time and paper, and reduces inconvenience occurred due to lost tickets.

5. **Reduced time at entry and exit:**

   Due to automated operations, digital ticketing and pre-booking available, time required at entry and exit is greatly reduced.

6. **Unified Parking Management Dashboard**

   It displays information for every parking space integrated with our parking management system.

7. **High level transparency** in operation and management of parking spaces between government authorities and public.

8. **Future Scope:** Our smart parking is compatible for many future functionalities such as EV charging station, smart restrooms, smart sleeping pods, etc.

# ANNEXURE B

# DPIIT CERTIFICATE

CERTIFICATE NO:
*DIPP72167*

सत्यमेव जयते

Government of India
Ministry of Commerce & Industry
Department for Promotion of Industry and Internal Trade

#startupindia

## CERTIFICATE OF RECOGNITION

*This is to certify that* ***KRYPTON AI TECHNOLOGIES PRIVATE LIMITED*** *incorporated as a* ***Private Limited Company*** *on* ***11-11-2020****, is recognized as a startup by the Department for Promotion of Industry and Internal Trade. The startup is working in 'Transportation & Storage' Industry and 'Traffic Management' sector as self-certified by them.*

This certificate shall only be valid for the Entity up to **Ten** years from the date of its incorporation only if its turnover for any of the financial years has not extended ₹ 100 Cr.

| 16-12-2020 | 10-11-2030 |
|---|---|
| DATE OF ISSUE | VALID UPTO |

# ANNEXURE C

# CERTIFICATE OF INCORPORATION

सत्यमेव जयते

**GOVERNMENT OF INDIA**
**MINISTRY OF CORPORATE AFFAIRS**

Central Registration Centre

## Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 and sub-section (1) of section 8 of the Companies Act, 2013 (18 of 2013) and rule 18 of the Companies (Incorporation) Rules, 2014]

I hereby certify that KRYPTON AI TECHNOLOGIES PRIVATE LIMITED is incorporated on this Eleventh day of November Two thousand twenty under the Companies Act, 2013 (18 of 2013) and that the company is limited by shares.

The Corporate Identity Number of the company is U72900MP2020PTC053708.

The Permanent Account Number (PAN) of the company is **AAICK4354N** *

The Tax Deduction and Collection Account Number (TAN) of the company is **BPLK05692B** *

Given under my hand at Manesar this Eleventh day of November Two thousand twenty .

[redacted]

Digital Signature Certificate
Mr. Pankaj Srivastava
ASST. REGISTRAR OF COMPANIES
For and on behalf of the Jurisdictional Registrar of Companies
Registrar of Companies
Central Registration Centre

Disclaimer: This certificate only evidences incorporation of the company on the basis of documents and declarations of the applicant(s). This certificate is neither a license nor permission to conduct business or solicit deposits or funds from public. Permission of sector regulator is necessary wherever required. Registration status and other details of the company can be verified on www.mca.gov.in

Mailing Address as per record available in Registrar of Companies office:

KRYPTON AI TECHNOLOGIES PRIVATE LIMITED
H. NO. 09/A, ISHWAR NAGAR, BDA COLONY,, E-8, SHAHPURA,
BHOPAL, Bhopal, Madhya Pradesh, India, 462016

* as issued by the Income Tax Department

# ANNEXURE D

# MSME CERTIFICATE



भारत सरकार
Government of India
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Ministry of Micro, Small and Medium Enterprises

सूक्ष्म, लघु एवं मध्यम उद्यम

## UDYAM REGISTRATION CERTIFICATE


| | | |
|---|---|---|
| TYPE OF ENTERPRISE | MICRO | SERVICES |
| UDYAM REGISTRATION NUMBER | UDYAM-MP-10-0007809 | |
| NAME OF ENTERPRISE | M/S KRYPTON AI TECHNOLOGIES PRIVATE LIMITED | |
| SOCIAL CATEGORY OF ENTREPRENEUR | General | |

**NAME OF UNITS**

| SNo. | Units Name |
|---|---|
| 1 | KRYPTON AI TECHNOLOGIES PRIVATE LIMITED |

**OFFICAL ADDRESS OF ENTERPRISE**

| | | | |
|---|---|---|---|
| Flat/Door/Block No. | H. NO. 09/A, | Name of Premises/ Building | ISHWAR NAGAR |
| Village/Town | BHOPAL | Block | E-8 |
| Road/Street/Lane | BDA COLONY, SHAHPURA | City | BHOPAL |
| State | MADHYA PRADESH | District | BHOPAL , Pin 462016 |
| Mobile | 9424407601 | Email: | kryptonaitoffice@gmail.com |

| | |
|---|---|
| DATE OF INCORPORATION / REGISTRATION OF ENTERPRISE | 11/11/2020 |
| DATE OF COMMENCEMENT OF PRODUCTION/BUSINESS | 17/01/2021 |

**NATIONAL INDUSTRY CLASSIFICATION CODE(S)**

| SNo. | NIC 2 Digit | NIC 4 Digit | NIC 5 Digit | Activity |
|---|---|---|---|---|
| 1 | 30 - Manufacture of other transport equipment | 3020 - Manufacture of railway locomotives and rolling stock | 30205 - Manufacture of mechanical and electro-mechanical signalling safety and traffic control equipment for railways, tramways, inland waterways, roads, parking facilities, airfields etc. | Manufacturing |
| 2 | 62 - Computer programming, consultancy and related activities | 6209 - Other information technology and computer service activities | 62099 - Other information technology and computer service activities n.e.c | Services |

| | |
|---|---|
| DATE OF UDYAM REGISTRATION | 22/02/2021 |

Disclaimer: This is computer generated statement, no signature required.
Printed from https://udyamregistration.gov.in

For any assistance, you may contact:

1. DIC BHOPAL
2. MSME-DI INDORE

Visit : www.msme.gov.in ; www.dcmsme.gov.in ; www.champions.gov.in

BE A CHAMPION with the Ministry of MSME

# ANNEXURE E

# PERMISSION LETTER FOR POC

To,

Municipal Corporation,

Bhopal, M.P.

Date: 04 December, 2020

Subject: PERMISSION FOR TESTING **"Automatic Traffic Management System (ATMS)"** SYSTEM.

Respected Sir,

We are JPAD (Juvenile Programmers and Developers) incubatee at Bhopal Smart City Development Corporation Limited (BSCDCL). The Start-up is currently working on **"Automatic Traffic Management System (ATMS)"** that aims at proving AI-Based solutions to the present traffic management system. The prototype of the system is already presented and is tested in limited environment. The product being on the final stage of completion would need a real-time testing, and for that we would require the following permission from the department:

1) To install the **hardware** temporarily, which includes the camera to measure the traffic density.

2) To deploy the same on the **Arera Petrol Pump Square** or **Sindhi Colony Square**.

So, kindly grant us permission for testing and deployment of the product for a period of eight weeks **(8 weeks)**. We would be grateful to you. Your encouragement will help us in our objective to provide digital and safer solution to traffic management.

Thanking you.

Sincerely,

Arpit Shrivastava

(CEO JPAD)

Incubatee (Bhopal Smart City Development Corporation Limited)

Contact No.- 9424407601

Forwarded by:

# ANNEXURE F

# WORK ORDER OF THE PROJECT

**OFFICE OF THE MUNICIPAL CORPORATION, BHOPAL**

**ELECTRIC SECTION**

**NO.** 523 **/ES./2021** **Bhopal, Date** 08/11/**/2021**

**To,**

M/s. Krypton AI Technologies Pvt Ltd.
H.No. 9/A, Ishwar Nagar,
BDA Colony, E-8, Shahpura,
PIN- 462039, Bhopal.

**Sub : -** **Supply, Installation, testing and commissioning of Traffic Signal at Subhash Nagar ROB (Maida Mill side), Bhopal.**

Ref :- Your Tender No. 2021_UAD_158823_1 Dated 08.09.2021

With reference to your tender opened on **dated 06/10/2021** for the work of above said work, It is to inform that the Municipal Corporation, Bhopal has sanctioned the above work on the rated offered by you as per your tender.

You are requested to submit the performance guarantee amount of **5%** as Per **Rs. 70,614/-** in shape of Bank Guarantee with in 07 days of receipt of this letter so that the work order may be issued.

Your are therefore directed to execute the stamp Agreement as per prevailing rules for the above in the under signed office within a week time.

**Work Order Amount Rs. 14,12,280/-**
**Stamp Agreement Rs. 500/-**

**Executive Engineer (E.)**
**Municipal Corporation, Bhopal**

Sub Engineer (Elec.)
Municipal Corporation, Bhopal

# ANNEXURE G

# ACHIEVEMENTS

**INCUBATION AT BNEST Bhopal Smart City:**

We are currently incubated at BNEST incubation cell of Bhopal Smart City Development Corporation Limited (BSCDCL).

bNEST

**B-Nest Incubation Center-An Initiative by Bhopal Smart City**

## Incubation Letter

To,

Date: 16/09/2020

Krypton AI Technologies,

Congratulations you have made it to B-Nest!

We are pleased to inform that after a splendid round of evaluation by our esteemed screening committee, you have been selected for incubation at B-Nest.

We are building up a community of Start-ups at B-Nest who will elevate the entrepreneurial culture in Bhopal & create a favorable environment across the ecosystem to ideate, create & succeed. We are excited to have you on-board & welcome you as a B-Nest member to avail our state of the art facility from 17th September 2020.

Hope to see you achieve great things at B-Nest.

Best Regards,

Aditya Singh

CEO

B-Nest Foundation

**B-NEST FOUNDATION**
CIN: U74999MP2018NPL045634
Registered Office: Zone-14 Near Tatpar Petrol Pump BHEL Govindpura Bhopal
Email: bnest@smartbhopal.city Website: www.bnest.in

**WORKED AS TRAFFIC EXPERTS FOR MUNICIPAL COMMISSIONER DURING Hon. PRIME MINISTER SIR's VISIT OF BHOPAL IN JANUARY 2021**

We got opportunity to work actively with Municipal Corporation Bhopal as Traffic System experts while preparation for Hon. Prime Minister Sir's Visit in Bhopal in January 2021.

**FINALISTS IN NATIONAL STARTUP AWARDS 2021**

We have participated in National Startup Awards 2021 and were chosen as finalists in the field of Transport and Traffic Management.

**All Finalists**

| Name of Startup | Category | City | State |
|---|---|---|---|
| Amplify Cleantech Solutions Private Limited | Transport Services and Infrastructure | Hyderabad | Telangana |
| Bycyshare Technologies Private Limited | Freight & Logistics Services | Gurugram | Haryana |
| Catbus Infolabs Private Limited | Freight & Logistics Services | Bengaluru | Karnataka |
| Cogos Technologies Private Limited | Transport Services and Infrastructure | Bengaluru | Karnataka |
| Frontier Markets Consulting Private Limited | Freight & Logistics Services | Jaipur | Rajasthan |
| Krypton AI Technologies Private Limited | Traffic Management | Bhopal | Madhya Pradesh |
| Nayan India Science And Technologies Private Limited | Traffic Management | New Delhi | New Delhi |
| Smartbike Mobility Private Limited | Transport Services and Infrastructure | Hyderabad | Telangana |

https://www.startupindia.gov.in/nsa2021results/transport.html

**INTERACTION WITH HON. PRIME MINISTER ON NATIONAL STARTUP DAY:**

We were also among few startups chosen to present on the topic of "Technologies for Future", in an interaction with Hon. Prime Minister Sir, on the occasion of National Startup Day 2022.

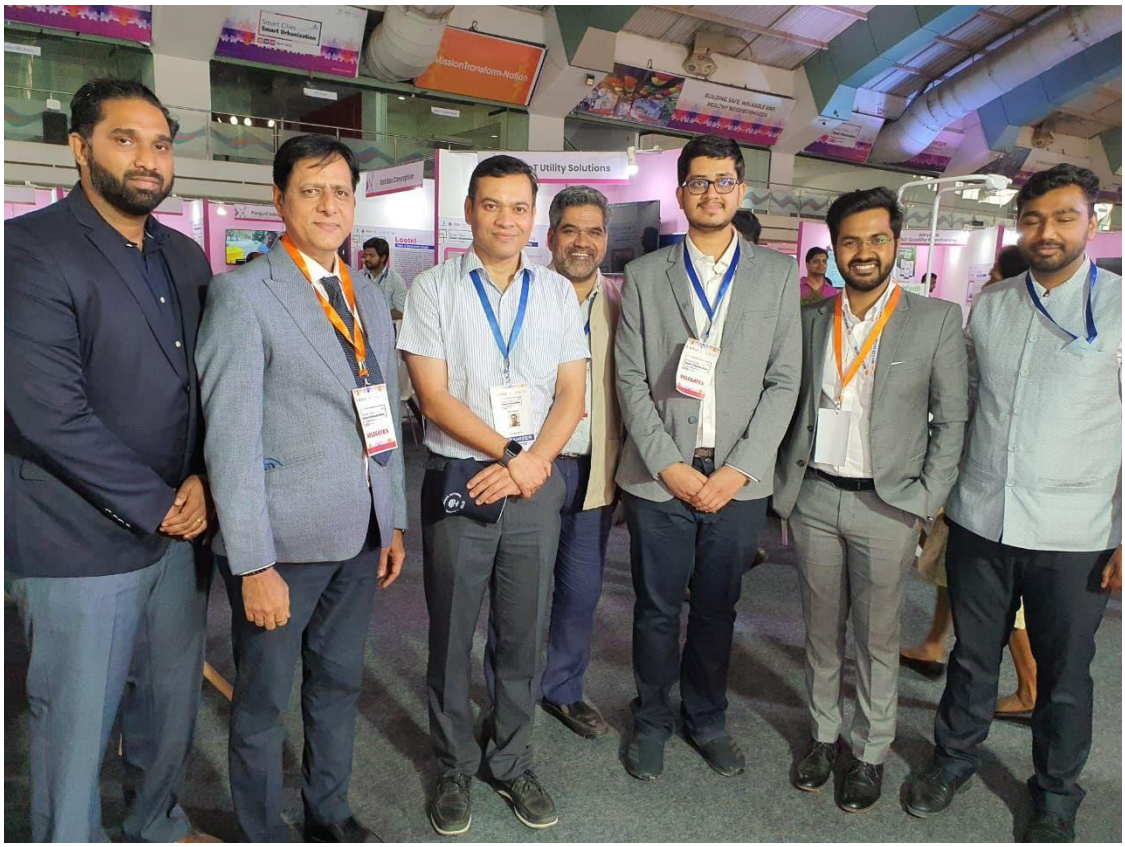
## APPRECIATION BY DIRECTOR OF MOHUA:

In a visit to BNEST, Bhopal, Director of Ministry of Housing and Urban Affairs, interacted with us appreciated our startup for its innovation and achievements.

## INVITATION FOR SMART CITY SMART URBANIZATION SUMMIT IN SURAT 2022:

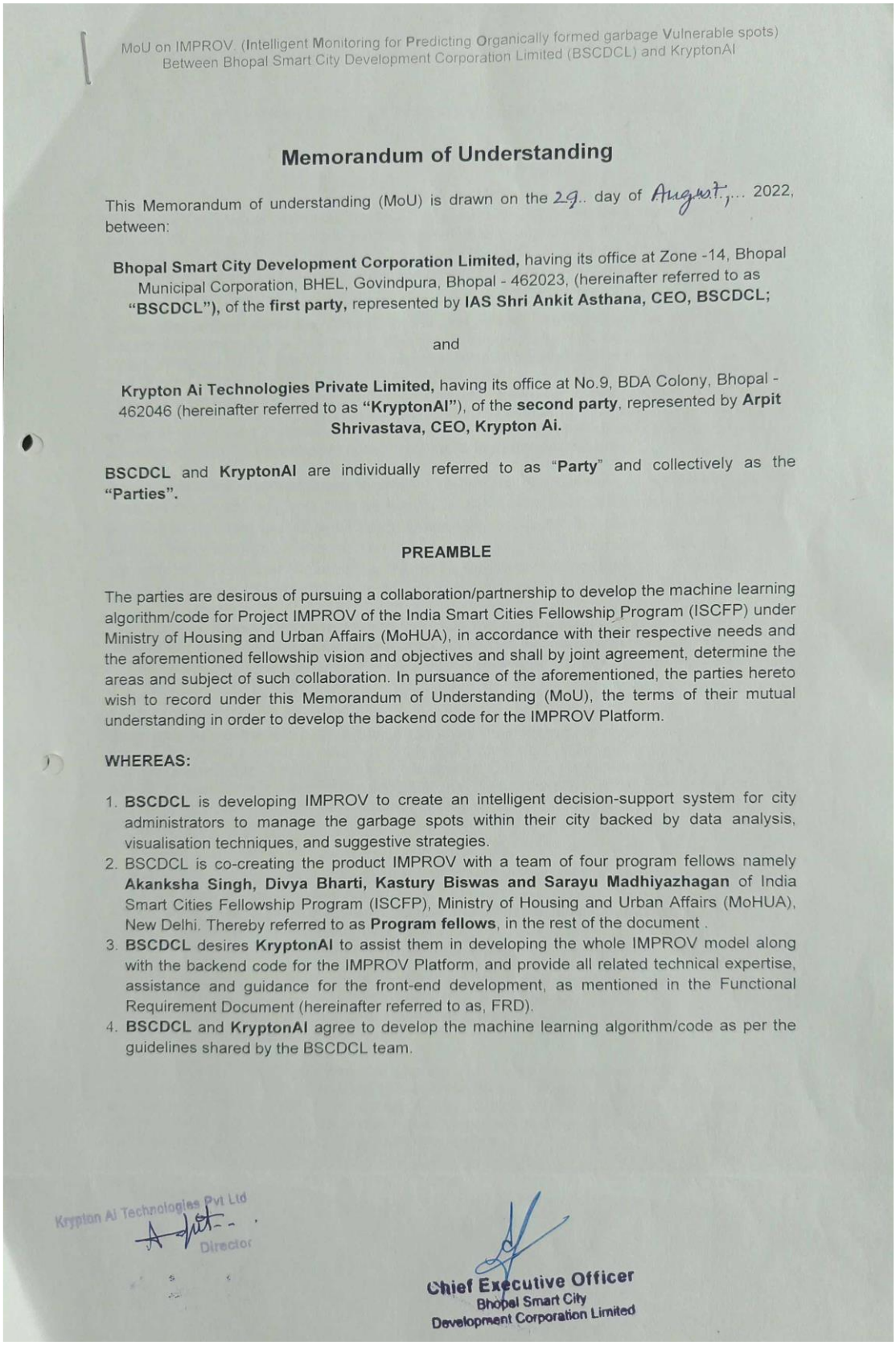
We were among very few startups selected and invited from all over the India in the "Smart City Smart Urbanization" Summit to present our solution and innovations to the Smart City CEOs and Municipal Commissioners attending the conference.


Krypton AI Technologies
KRYPTON AI TECHNOLOGY
ALWAYS DELIVER MORE THAN EXPECTED


VisionTransform-Nation
T Utility Solutions

## WORKED ON PROJECT IMPROV OF MoHUA ALONG WITH TEAM OF PROGRAM FELLOW:

We worked with a team of four program fellows of India Smart Cities Fellowship program (ISCFP), Ministry of Housing and Urban Affairs, to develop an intelligent decision-support system for city administration to predict and manage garbage vulnerability points.



MoU on IMPROV. (**I**ntelligent **M**onitoring for **P**redicting **O**rganically formed garbage **V**ulnerable spots)
Between Bhopal Smart City Development Corporation Limited (BSCDCL) and KryptonAI

### Memorandum of Understanding

This Memorandum of understanding (MoU) is drawn on the 29.. day of August,... 2022, between:

**Bhopal Smart City Development Corporation Limited,** having its office at Zone -14, Bhopal Municipal Corporation, BHEL, Govindpura, Bhopal - 462023, (hereinafter referred to as **"BSCDCL"),** of the **first party,** represented by **IAS Shri Ankit Asthana, CEO, BSCDCL;**

and

**Krypton Ai Technologies Private Limited,** having its office at No.9, BDA Colony, Bhopal - 462046 (hereinafter referred to as **"KryptonAI"**), of the **second party**, represented by **Arpit Shrivastava, CEO, Krypton Ai.**

**BSCDCL** and **KryptonAI** are individually referred to as "**Party**" and collectively as the **"Parties".**

**PREAMBLE**

The parties are desirous of pursuing a collaboration/partnership to develop the machine learning algorithm/code for Project IMPROV of the India Smart Cities Fellowship Program (ISCFP) under Ministry of Housing and Urban Affairs (MoHUA), in accordance with their respective needs and the aforementioned fellowship vision and objectives and shall by joint agreement, determine the areas and subject of such collaboration. In pursuance of the aforementioned, the parties hereto wish to record under this Memorandum of Understanding (MoU), the terms of their mutual understanding in order to develop the backend code for the IMPROV Platform.

**WHEREAS:**

1. **BSCDCL** is developing IMPROV to create an intelligent decision-support system for city administrators to manage the garbage spots within their city backed by data analysis, visualisation techniques, and suggestive strategies.
2. BSCDCL is co-creating the product IMPROV with a team of four program fellows namely **Akanksha Singh, Divya Bharti, Kastury Biswas and Sarayu Madhiyazhagan** of India Smart Cities Fellowship Program (ISCFP), Ministry of Housing and Urban Affairs (MoHUA), New Delhi. Thereby referred to as **Program fellows**, in the rest of the document .
3. **BSCDCL** desires **KryptonAI** to assist them in developing the whole IMPROV model along with the backend code for the IMPROV Platform, and provide all related technical expertise, assistance and guidance for the front-end development, as mentioned in the Functional Requirement Document (hereinafter referred to as, FRD).
4. **BSCDCL** and **KryptonAI** agree to develop the machine learning algorithm/code as per the guidelines shared by the BSCDCL team.

Krypton Ai Technologies Pvt Ltd
Director

Chief Executive Officer
Bhopal Smart City
Development Corporation Limited

# ANNEXURE H

# WEBSITE and VIDEO REFERENCES

**Website Link:**

**https://kryptonait.com**

**Video 1: Ai-ATCS simulation on SUMO**

https://www.youtube.com/watch?v=aSRLRq-xyrw&t=46s&ab_channel=KryptonAiTechnologies

**Video 2: SCSU 2022 special mention by CEO, Smart City Bhopal**

https://www.youtube.com/watch?v=GJ19C1xnwkE&ab_channel=KryptonAiTechnologies