

# Automatic Doorstep Access Point Using Drones(Adapd)

Anu roopa devi S<sup>1</sup>, Ragavendra M<sup>2</sup>, Ramkumar R<sup>3</sup>, Santhosh M<sup>4</sup>

<sup>1</sup>Assistant Professor, M Kumarasamy college of engineering  
<sup>2,3,4</sup>Students, M.Kumarasamy College of Engineering

**ABSTRACT:** *The overview of this project is to eliminate the errors that occur during An Amazon drone and its Receiver. We have an integrated a much simpler receiving platform for this drone delivery mission The Receiver being a Unique Location chip for each user with a drone landing box for its to drop its valuables that being purchased online. In this project, we connected GPRS system with the drone which will navigates to the the customer location. And also, it will navigate by voice command by the customer too. Once the drone reaches the customer address it will place the product in the delivery box. And wait for the customer verification. The customer will get a verification call or an OTP for their respected mobile. After getting the verification acknowledgement the customer provides it to the drone. The drone verifies the acknowledgement if its correct it will deliver the product and move on. In case no one gives an acknowledgement, the drone waits for 10min there from the landing. Then it moves return to the office and sent the acknowledgement to the admin office. And moves to the next delivery. In case any unauthorized person grabs the product in drone it will produce a mild shock to realise them and flies to the nearby office.*

**KEYWORDS:** DRONE, OTP, CUSTOMER.

## 1. INTRODUCTION:

The online shopping is the one of the trending business now a days, this was developing a huge. People are now purchasing things through online makes the people more beneficial. And also they are offering more offers like stuff and all. DADAP can deliver items to some customers just hours after their order has been placed. But the online retailer Survey says that the time consumption to delivering by the drone will reduce the delivery of the product. DADAP drones will be able to carry parcels weighing up to certain limit like 1 pounds and also size of certain cubic centimetre box. Online offers a broad variety and variants of products, so the company had to narrow down the types of packages that would be feasible to deliver by drone. “The goals we’ve set for ourselves are: The range has to be over 1 mile due to this test phase. “These things will weight less on testing for now due to our aim for bringing the delivery pad into an innovative segment since the drones are mainly operated by Online giants like Pizza Hut , Amazon ( Amazon prime Air). Product can be delivered to the customer weather the customer is even in their place.

## EXISTING SYSTEM

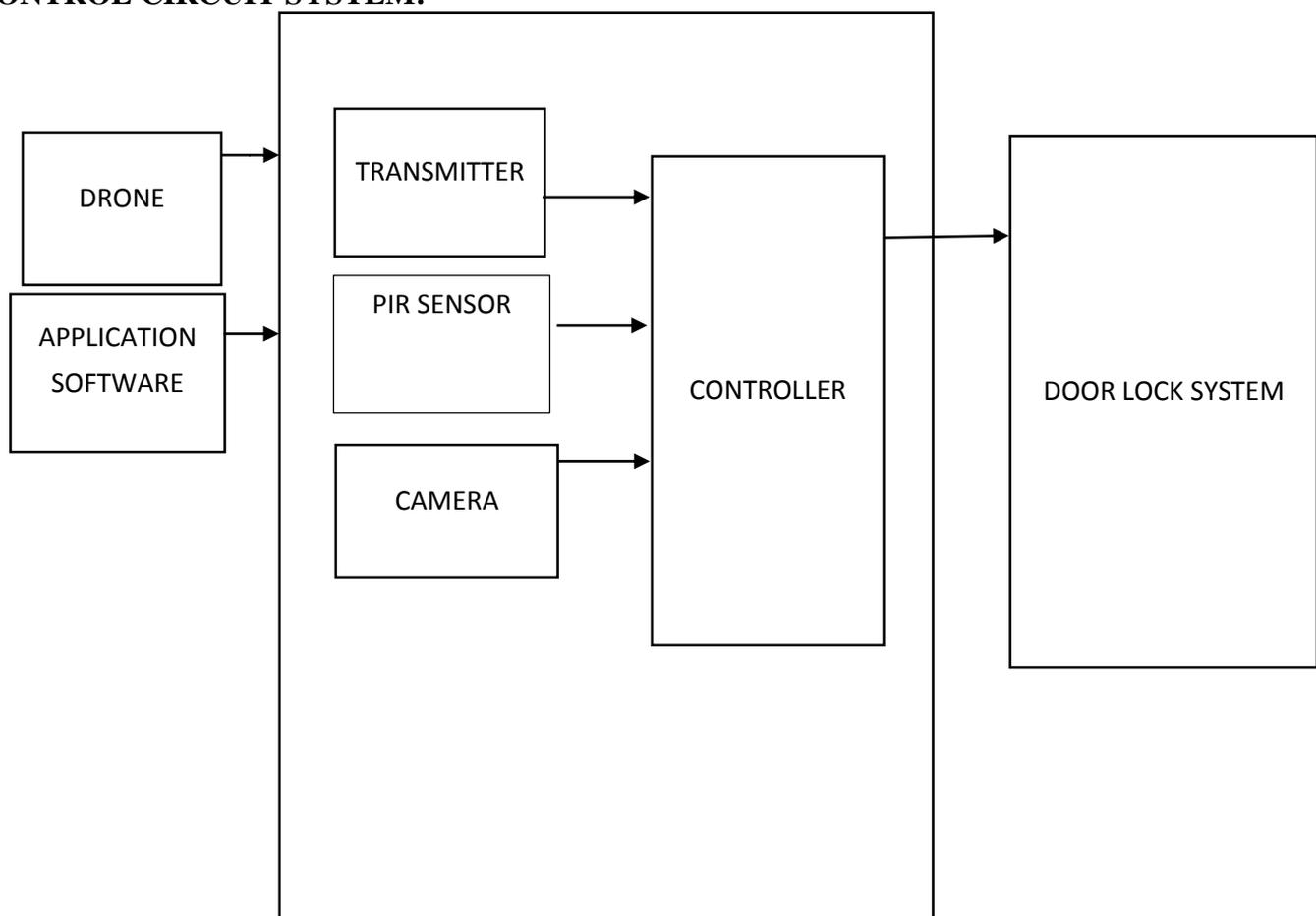
Amazon’s drones will be creative enough to tackle the modern day issuess. The airborne transportation drones that Amazon plans to use for its delivery services will be “quite different” than the drones’ hobbyists can buy today in stores. We are provided with more

details about how these “highly automated” drones will be able to detect obstacles and avoid them during travel.

“These drones are more like horses than cars - let me explain. You are having an tree in your garden. You want to round the tree for some reason. While driving the car we have to drive accordingly to its, it won’t by their own, when we look at the horses, The house will know look at the tree and rotate around the tree. It will won’t go into it. Like wise our drone will also move according to the object.

The sky will not be filled with Noise, Air drones with traffic issues because of Prime Air. Anyone who lives near a busy street can attest to just how noisy it is to have delivery vehicles and traffic constantly zooming by. Amazon will be contributing a new type of vehicle to the mix when Prime Air eventually launches, but Amazon’s drones will not be too noisy or error oriented. “Reducing the noise” is one challenge the Amazon is looking into, according to Amazon technologist. “But if we design these correctly, they won’t be loud and obnoxious and noisy,” Amazon is one of several companies planning to make drone delivery a reality. Google has previously said that it wants to start delivering packages via drone by 2017, and in October Walmart applied to U.S. regulators for permission to test drones for delivery as well. DADAP is the future to these Drones for their easy deliver.

**CONTROL CIRCUIT SYSTEM:**



**COMPONENTS ASSEMBLY:  
ESP32**



Fig 2: ESP32

ESP32 is a low power microcontroller system with an integrated Wi-Fi and dual-mode Bluetooth. Which can be of low in cost. This can connect to FTDI and cam along with PIR sensor.

**PIR SENSOR**



Fig 3: PIR SENSOR

Passive infrared (PIR) sensors which will detect the change in motion. When the drone will be placed on the box the drone will be sensed by the PIR sensor. Then passes the information to the ESP32.

**ESP32CAM**



Fig 4: ESP32CAM

ESP32-cam is a low budget Wi-Fi camera used for projects which will produce good quality of streaming. While the PIR sensor senses the camera will pick up the snap and sent to the probable customer mail. To the confirmation of the customer, that the product is his/her for confirmation.

## DRIVER CIRCUIT(L298N)



Fig 5: L298N

**L298N** is an high-power version of the L293 motor driver IC circuit. It is having high voltage, high current, dual full-bridge driver designed to accept standard TTL logic levels and drive inductive loads such as relays, solenoids, DC, and Stepper motors. This will be connected to the ESP32 for the operation of door in the box. This will open and close the door box while the drone will come to deliver the product.

## DC MOTOR



Fig 6: DC motor

DC motor connected to the ESP32 along with driver circuit. While the product will come, after the customer confirmation. The motor runs and open the door, then close after the product placed inside.

## WORKING:

In this process the product ordered by the customer can be delivered to the district head office. From there it will be delivered to the delivery agents. We can first choose the normal shop in the local area as a delivery agent office. It seems that the shops in the local area with some basic infrastructure can be selected and have some decent agreement for delivery. By that we cannot create a domestic office in every area. Thill will reduce the cost of the rent and employee salary.

The orders can be delivered to the shops it means agencies. By the truck. Moreover truck will deliver around 10 areas in city. Then the people in the truck will arrange the parcels in the order by time and distance.

The drone can be of wireless charging and it will have a backup too, in the shop[16-19]. There was a card designed. This will be inserted to the drone every day according to the delivery of the drone. The card will give the detail about the parcel delivery address, time & order the drone. By that the drone will pickup the parcels and deliver to the customer by a systemic order.

First the amazon will take a demo working of the drone deliver system. In that they use the amazon logo placed on the floor that can be scanned by the camera in the drone the by that the drone will deliver to the customer, by this method is not possible, it seems that more

people are now order products through online. So, it there was maximum chances to deliver the product wrong.

So, we can fix a receiver in the drone, we can alert specific timing to every customer. By that time, the transmitter in the box will on automatically. So that both get connected. By tracking the signal, the drone will move accordingly.

We will design a box shaped delivery box for every home. Which will have specific transmitter id. In that box there was a camera fixed at the top. When the drone will come to the home by tracking the signal. Above the box there was a stand for drone fixation. For every product there was a delivery slip attached in the parcel.

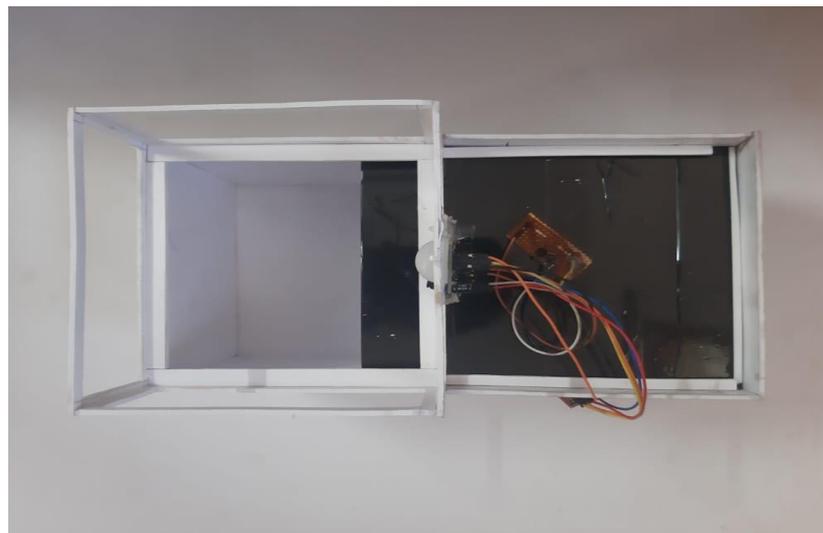


Fig 7: HARDWARE DIAGRAM

That can be photographed and sent to the customer mail. Once the customer got the mail. The he went to the particular app. And enter the pin in the delivery box option created in the app. So that the door of the box will be opened. The drone will release the product once the door of the box will be opened. After the dropping the drone will fly to the office pick up the next delivery. The box door will be closed after the parcel dropped[12][13].

While we return to the home, we will go to the app and by entering the pin, again the box will open, we can pick the parcel. Then the door closed.

In case the parcel was wrong the customer will notice in the mail and go to the app and mark the wrong option so that the drone will take that to the office[14][15]. And intimation sent to the administrative office. In case there was a disturbance in the intermediate place while traveling. Immediately the camera on the drone will on and pick the snap around it and sent pick and location to office.

Video link for your references:

[https://drive.google.com/file/d/1-gGhyqQNPZdHAsoJ5tiaioGp\\_Aqo6mXO/view?usp=drivesdk](https://drive.google.com/file/d/1-gGhyqQNPZdHAsoJ5tiaioGp_Aqo6mXO/view?usp=drivesdk)

## 2. METHODOLOGY:

First the customer will place the order. Then it can be packed and ready for the shipping. After that it reaches to the customer district head office. Then it can be delivered to the local distributing office. Which is the locally available shop. for there, the big parcels can be

directly bought by the customer. The product that must be carried by the drone that has a certain weight and size limits. That can be carried by the drone to the delivery box. The delivery box contains location tracking system. The esp32 placed in the box sent the snap to the customer mail. For the confirmation of the product. After that the customer confirmation the product can be placed on the box. In case it was wrong one the message can be sent to customer support center.

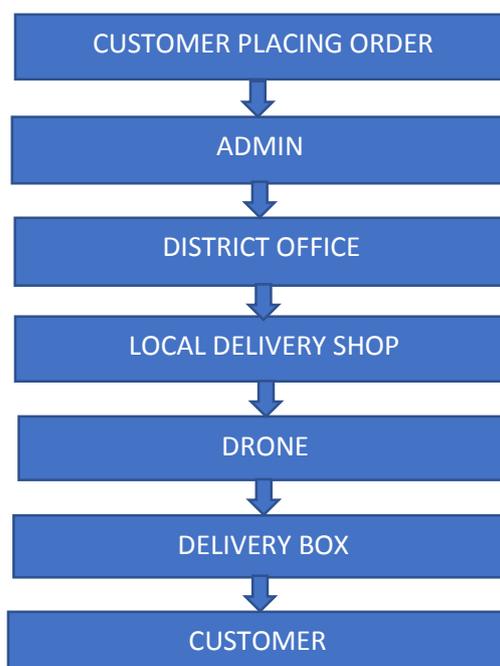


Fig 7: Methodology

### 3. RESULTS AND DISCUSSION:

The idea is about changing the mode from manual to automatic. Now a days we are changing to wards online. So the we need more new ideas to coup with that. Our idea is to setup an drone delivery system, but this is already done by amazon, but we people are upgrading that one. We are designing and delivery box with certain CBM. Where the drone will place the product. The customer will place an order, then the product can be shipped from the seller to the respective customer district, the to the locally shop, which can be of delivery local office with 10kmn surrounding. From there the drones will deliver the parcels, when it comes to huge size and weight the people can directly pick it up. The drone will have an access card with the schedule of delivering address like details. From that it will deliver the parcels. The transmitter and receiver get connected and the drone will reaches the destiny of deliver address. So that it will place the product above the box. Then the camera will take a snap for confirmation. After that by the confirmation of customer the parcel has been dropped on the box. After sometimes the customer will pick the product when he arrives the home. This will help the customer, weather he/she is in the home are not where ewer they can receive the product with safe and secure.

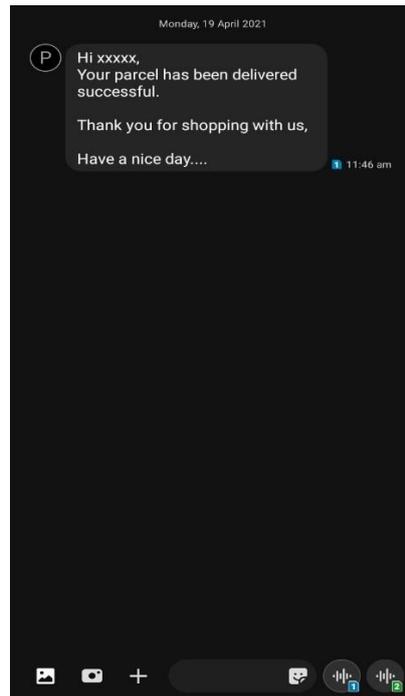


Fig 7: RESULT

#### 4. CONCLUSION:

Drones have always fly to the occasion whenever we need. They are best combination from mechanical, electronics and software technology. Drone will play a major important role in almost each and every fields in future. Our project is the key for its new path of analysing and working on the depths of its various usage in package delivery.

#### 5. REFERENCE:

- [ 1] S.Meivel, S. Maheshwari, “Standard agricultural drone data analytics using KNN algorithm”, *Test engineering and managemet*, Vol 82, 2020.
- [ 2] S.Palanivel Rajan, C.Vivek, M.Paranthaman, “ Feasibility analysis of portable electroencephalography based abnormal fatigue detection and tele-surveillance system”, *International journal of computer science and information security*, Vol 14, Issue 8, 2016.
- [ 3] S. Meivel, S.Maheshwari,” Design and aluminium framework of drone using solidworks”, *International journal of grid and utility computing*, Vol 12, Issue 2, 2019.
- [ 4] “Feasibility Analysis of Portable Electroencephalography Based AbnormaMalatone Bouasym, "USCG Search And Rescue Drone", *Engineering Technology Capstone Project*, 2015.
- [ 5] Nanomi Kenzo, "Prospect and Recent Research & Development for Civil Use Autonomous Unmanned Aircraft as UAV & MAV", *Journal of System Design and Dynamics*, vol. 1, no. 2, 2007.
- [ 6] Henri Eisenbeiss, "A Mini Unmanned Aerial Vehicle (Uav): System Overview And Image Acquisition", *International Workshop on “Processing And Visualization Using High-Resolution Imagery”*, 18–20 November 2004.

- [ 7] Peter M. Asaro, "The labor of surveillance and bureaucratized:killing: new subjectivities of military drone operators", *Social Semiotics*, vol. 23, no. 2, pp. 196-224, 2013.
- [ 8] Reindel, Markus, 2002. Pinchango Alto: a gold miners' settlement in Palpa, Peru.In: Proceedings of the IInd SBA Conference on "Roads to war and pipes of peace". Brussels. Belgium. 16-17 November 2002 (in press).
- [ 9] Schwarz, K., P., El-Sheimy, N., 2004. Mobile Mapping Systems – State of the art and future trends. Istanbul. IAPRS, Vol. XXXV, Part B1.
- [ 10] Kenzo NANOMI, "Prospect and Recent Research & Development for Civil Use Autonomous Unmanned Aircraft as UAV & MAV". *Journal of System Design and Dynamics*, Vol.1, No. 2, 2007.
- [ 11] Richard M. Thompson II," Drones in Domestic Surveillance Operations: Fourth Amendment Implications and Legislative Responses," Congressional Research Service 7-5700 www.crs.gov R42701, April 3, 2013
- [ 12] Rachel L. Finn and David Wright, "Unmanned aircraft systems: Surveillance ethics and privacy in civil applications", *computer law & security review*, vol. 28, pp. 184 e194, 2012.
- [ 13] K. Yasoda, R. Ponmagal, K. Bhuvaneshwari, and K. Venkatachalam, "Automatic detection and classification of EEG artifacts using fuzzy kernel SVM and wavelet ICA (WICA)," *Soft Computing*, vol. 24, no. 21, pp. 16011-16019, 2020.
- [ 14] C. Viji, N. Rajkumar, S. Suganthi, K. Venkatachalam, and S. Pandiyan, "An improved approach for automatic spine canal segmentation using probabilistic boosting tree (PBT) with fuzzy support vector machine," *Journal of Ambient Intelligence and Humanized Computing*, pp. 1-10, 2020.
- [ 15] K. Venkatachalam, A. Devipriya, J. Maniraj, M. Sivaram, A. Ambikapathy, and S. A. Iraj, "A novel method of motor imagery classification using eeg signal," *Artificial intelligence in medicine*, vol. 103, p. 101787, 2020.
- [ 16] S. K. Vasudevan, K. Venkatachalam, H. Shree, R. B. Keerthana, and G. Priyadarshini, "An intelligent and interactive AR-based location identifier for indoor navigation," *International Journal of Advanced Intelligence Paradigms*, vol. 15, no. 1, pp. 32-50, 2020.
- [ 17] Punithavathani, D. Shalini, K. Sujatha, and J. Mark Jain. "Surveillance of anomaly and misuse in critical networks to counter insider threats using computational intelligence." *Cluster Computing* 18.1 (2015): 435-451.
- [ 18] Sujatha, K., and D. Shalini Punithavathani. "Optimized ensemble decision-based multi-focus imagefusion using binary genetic Grey-Wolf optimizer in camera sensor networks." *Multimedia Tools and Applications* 77.2 (2018): 1735-1759.
- [ 19] Chang, Jinping, Seifedine Nimer Kadry, and Sujatha Krishnamoorthy. "Review and synthesis of Big Data analytics and computing for smart sustainable cities." *IET Intelligent Transport Systems* (2020).
- [ 20] Song, Hesheng, and Carlos Enrique Montenegro-Marin. "Secure prediction and assessment of sports injuries using deep learning based convolutional neural network." *Journal of Ambient Intelligence and Humanized Computing* 12.3 (2021): 3399-3410.