**Aerial Surveillance System using UAV**

Abstract:

In today’s world, there is a growing need for surveillance in order to maintain the decorum at a place and ensure the safety and security of its people. An aerial surveillance system will be worthwhile in this regard. This paper describes how an aerial surveillance system can be built using an unmanned aerial vehicle or a drone. We start by delineating the features of our aerial surveillance system and then discuss some of the technologies that we have used in building it.

After that we mention how we have incorporated those technologies into a drone and have made them work together harmoniously in order to achieve our desired aerial surveillance system. This system will be a convenient and efficient alternative to current surveillance systems. It can be used in peace keeping activities and also real time monitoring of a place at any time of the day. The aim is to provide fast and efficient surveillance at an affordable rate so that it can be used widely at private, institutional and governmental level.

Keywords—surveillance; drone; quadcopter; UAV; Waypoints; live streaming.

INTRODUCTION

Drones can be used for surveillance for both civil and military purposes. Police officers often have to patrol within a city to ensure that law and order is maintained and hence assuring the safety of the citizens. Natural disasters are increasing at an alarming rate in the world. Every now and then we hear in the news about an area affected by earthquake, flood or a hurricane etc. There is a need to examine such a disaster stricken area before undertaking necessary rescue and help measures. Military officers often have to patrol dangerous areas in order to search for any potential threat, illegal activity or intrusion within the borders of a country that can put the lives of citizens in jeopardy. Such areas involve very high risk to human life. He has to overcome fatal natural obstacles like steep mountain slopes, forceful water currents, hostile and barren desert areas and other such areas. The Aerial Surveillance System can be used easily to get this job done without any loss of human life. Also, the speed of operation will be faster with the drones as it can continue to fly for days and days on end, unhindered. Thus drones are an excellent method for doing aerial policing An Aerial Surveillance System is basically a flying machine that can be controlled remotely with capabilities to transmit real time data to a control room.

EXISTING SYSTEM

In existing system we were using cctv (closed circuit tv) camera for surveillance to monitor the private like shop, mall and factories etc., and government level like roads, military base and airport etc. Based on cctv camera system most of government protect the civilians. Even the crimes reduce due to surveillance of cctv. Police use cctv to find crimes and evidence. In most of shop and malls were monitored by cctv using live streaming.

EXISTING SYSTEM DISADVANTAGE

* Require installation for new cctv camera.
* It required more number of cctv camera to cover the full surveillance area.
* It cannot move for desired area.
* It required more cost.
* Changing of area require new installation.
* It cannot monitor during disaster.
* It can be easily manipulated by hackers.

PROPOSED SYSTEM

Our project can be used for surveillance in civil and military areas. It can be used for monitoring of a campus, office and industrial areas by various institutions, for monitoring the borders and in peace keeping activities by the government and can also be used to monitor private properties by individuals. Using them for surveillance will ensure the safety and security of not only the citizens but the soldiers as well. The aerial surveillance system has many advantages over the existing methods of surveillance in our country. UAV can continue to fly at a high speed unhindered while a human being, even in a high speed aero plane needs rest. It will be cheaper as there is no need to deploy and pay for human resource for this task. This method will be much more efficient and less erroneous because human beings are more prone to committing errors than machines and in this system most of the human errors will be avoided. It is much more convenient because many of the natural obstacles that are faced while sending soldiers to hostile terrains in order to check for potential threats.

PROPOSED SYSTEM ADVANTAGE

* UAV can continue to fly at a high speed unhindered.
* It will be cheaper as there is no need to deploy and pay for human resource for this task.
* It is much more convenient because many of the natural obstacles that are faced while sending soldiers to hostile terrains in order to check for potential threats.
* It will be much more efficient and less erroneous
* In system most of the human errors will be avoided.
* Even in disaster time we can monitor using UAV system.

HARDWARE REQUIREMENT

* Pixhawk
* Lipo Battery
* Radio Controller
* Raspberry Pi B+

SOFTWARE REQUIREMENT

* Raspbion
* Python.