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ARDUINO AND USING IT AS A SMART WILDLIFE SAFETY SOLUTION

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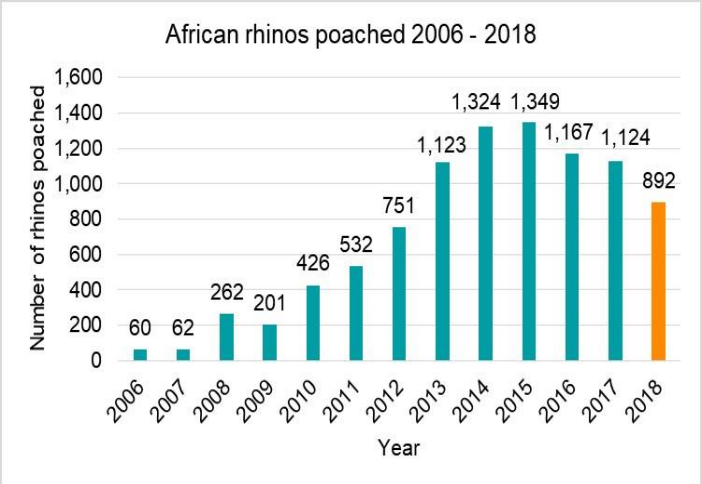
ABSTRACT

This Era of 21th Century, Era of computer and its Increasing Technological Attributes AI, etc Killing of traditional ways of wildlife Conservation, have to a bring Convenient way of conserving them and it is only possible when Technology is in action. Wildlife is under Threat from Various Kinds of Human activities, such as habitat destruction,Illegal wildlife trade spread of invasive species etc. This Activities is bringing Decrement in the wildlife and from us, we i.e. From the impact on earth's Climate, It is changing the nature of wildlife habitat. Its not a time to halt and questioning and searching only the problems, its time to charge the problem (Wildlife Extinction due to various Purposes) ,bring Technology in action, we have to bring Robotics and Intelligent Systems[12] in the conservation and Research field to enhance the different strategies for wild life conservation.

I. INTRODUCTION

Forest and wildlife are the part and parcels of our Precious and fragile Environment and need protection and environment . Protection and safeguarding of forest Environment and wildlife are crucial to retain the earths's health. The earth is the only known living planet and it is because of its extraordinary environement and ecology which are life sustaining but is in the verge of devastation **More than 30,000 species** are threatened with extinction : **amphibians** 41% (33-53%)**,reptiles** 35% (29-45%)**,mammals** 25% (22-37%) **,birds** 14% (13.5-14%) [**1**]. Some cases of prohibited wildlife trade are well known, such as poaching of elephants for ivory and tigers for their skins and bones. Poaching threatens the last of our wild tigers that number around 3,890 [**2**]. South Africa has the largest population of rhinos in the world and is an extremely important country for rhino safeguarding.

In the last decade, 8,889 African rhinos have been lost to poaching.[**5**] . Though some Strategy are implemented such as Greater Sage-Grouse: FY15-18 Investment Strategy , Golden-winged Warbler: FY17-21 Conservation Strategy , Gopher Tortoise: FY17-18 Implementation Strategy by **United States Department of Agriculture [3]** it should be implemented using technology effectively ! Some organization **,**[**4**] have contributed to the genuine improvement in IUCN Red List status of species through captive breeding and reintroduction conservation measures. Accelerometers ,Devices such as GPS are applied in zoos to examine questions about patterns of movement, activity levels, or habitat use.[**6**] also Late last year, a new satellite antenna named "ICARUS" [7] – short for International Cooperation for Animal Research Using Space – was attached to the International Space Station. The objective of the instrument is to noticeuniversalwanderingactions of small animals that have never before been calculated, using GPS technology.



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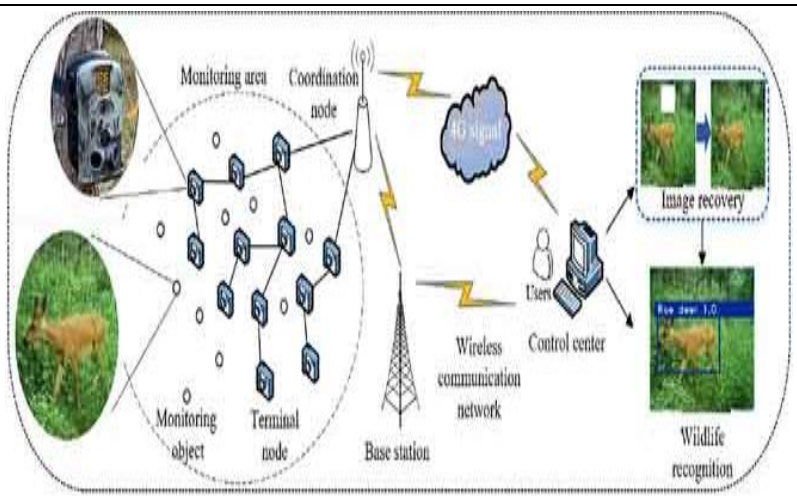

Detection and monetization OF WILD LIFE Source [Published July 13, 2018 in Innovation[7] By David festa]

The antenna can gather a variety of statistics on species – including altitude, temperature and speed – and provide up to 12 readings per day, using solar-powered animal tags weighing less than 5 grams each, the lightest ever made. The antenna and tags are presently in aexaminationstage, with researchers set to initiatelearning species' movements in 2019.

1. It can notice habitat alterations more quickly.

2. It'll help us to mediateearlier species are on the border.

Hence, this my Topic wants to take this problem as top prior and reviews some of technologies (I personally erected/ideas/Views/Enhancements) that focuses on Tackling this National as well as global issue

II. METHODS

This analysis does not Focus to examine the technical details involved in cloning methodology as plenty of such reviews have already been written. Instead, it examines the conservation-related objectives that this technology would, or could, serve. As the detailed biology of cloning in most species is unspecified at the present time, the authors do not aim to consider the detailed advantages, disadvantages and biological implications of every Capacity cloning application; that would in need of virtually unlimited amounts of text. furthermore, in line with the purpose of review papers in this journal, this review is aimed at a wide audience who are not necessarily experts in either wildlife conservation or cloning; species-specific details of cloning are therefore less appropriate in this context than the general principles. Technology could help people on frontline of the battle to protect wildlife.

Problems Through out my research and analysis

Problem 1st: Many Species are being Killed in roadways while passing throughout the thoroughfare

Problem 2nd: Burnt Alive due to forest fire[Australia, Amazon forest fire]

Problem 3rd: Killed Abnormally [Hunting , Poaching , Illegal Trading, Diseases]

Problem 4th: Animals are Undetected in illness ! Concerning Authority is Unknown

Our Gadget In action for the solution:

We prepared gadget sample which could offer a little help in conserving wildlife which, could Enough for our society, for the conservation of wildlife!

GPS Technology and Tracking Location:

Mobile app with Database connectivity: // Complete Analysis as ICARUS DID

Solution to problem 4st Using GPS Technology

1. Simply and easy to use:
2. Click Photo of dead Animals or animals in the verge of Death, and Upload to the app!
3. User|Admin could detect the area of the Incident by its Geolocation Tagline[**5**]

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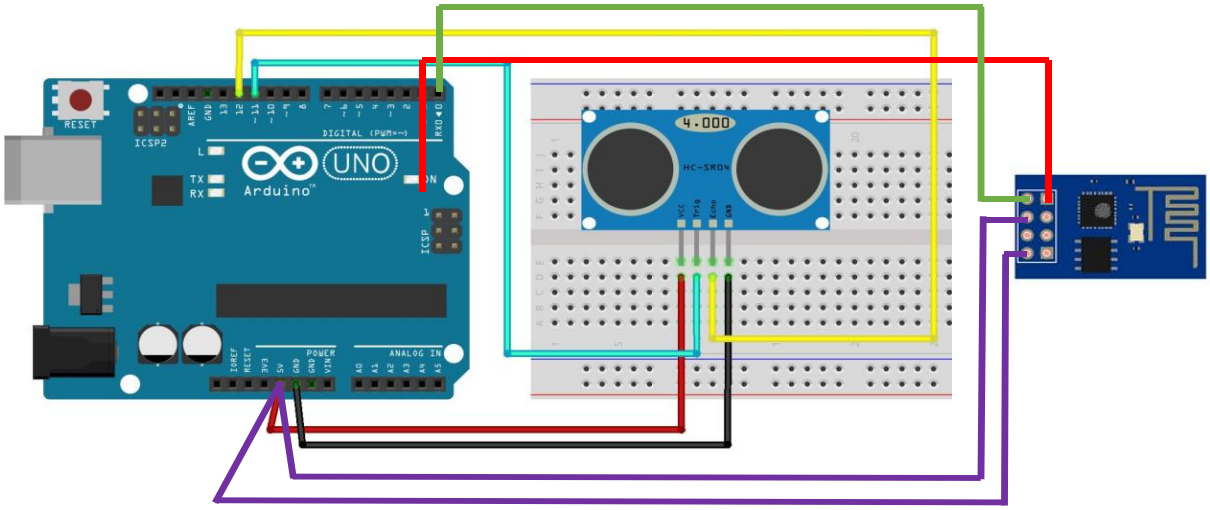
Ultrasonic distance Sensor Arduino Based alert system !



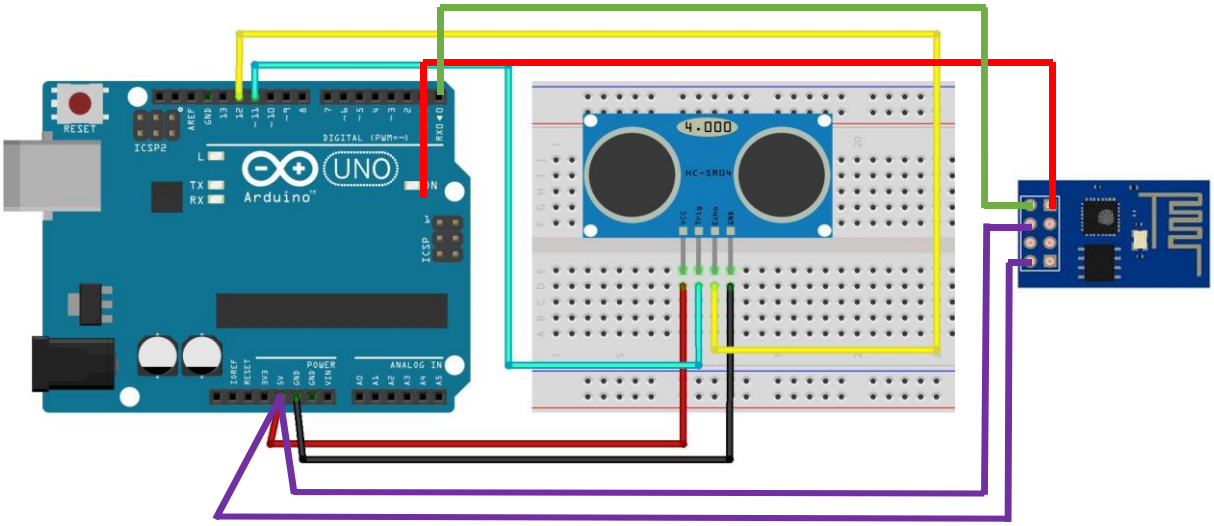
Solution to the problem 1

An estimated 10 million to 20 million crashes between motor vehicles and large animals such as deer occur in the year, causing approximately 20000 human deaths, 26,0000 injuries, and at least $80 billion in property damage and other costs. In rural states such as Wyoming, wildlife-vehicle crashes represent almost 20% of reported collisions. The cost to wildlife also is significant. With wildlife corridors often blocked or impeded by roads and highways, economically important species such as elk and mule deer are cut off from seasonal migration routes, threatening population stability. Fortunately, transportation infrastructure can help to resolve these problems.

Hardware Component

- Arduino
- 830 Point Solderless PCB bread Board
- HC-SR04 Ultrasonic Sensor (Distance)
- ESP8266-12N WIFI Module

FIREALARM Technology using Arduino



Solution to the problem 2nd

When fires rage through a forest, it's not just that we're losing valuable tree cover and there's pollution being sent up into the sky. Animals that live in the forest are also in danger of losing their habitat and dying, and that's exactly what's happening in the amazon. cientists told AFP that more than 2.3 million animals may have died in

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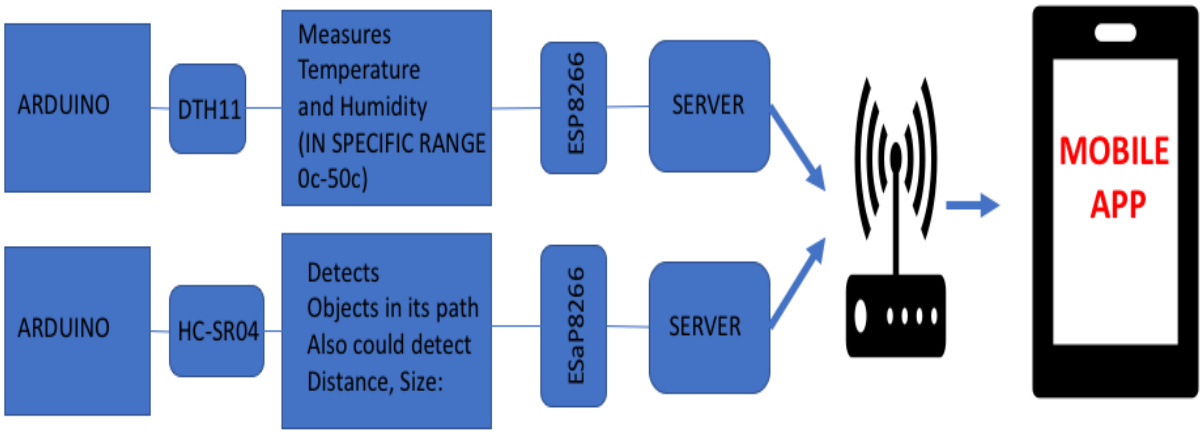
the flames racing through the protected forest areas in the region, as well as grasslands like the the tropical savannas of the Chiquitania region.

Bolivia has seen close to 34,000 fires this year, 75 percent higher than by the same time last year, according to Brazil's National Institute for Space Research. And they say it's mainly due to farmings clearing land in the forest to set up farmland for crops, as well as the recent extended periods of drought courtesy of climate change. We can solve these problem by:

Attributes : Component and supplies

- Arduino
- DTH11N(4 pin) Temperature and Humidity sensor
- 830 Point Solderless PCB bread Board
- ESP8266-12N WiFi Module

III. OVERVIEW



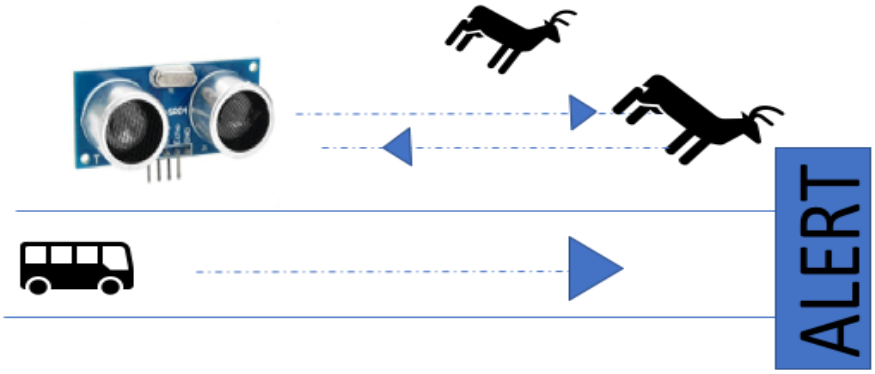
IV. WORKING

The **DHT11** sensors support an easy and reasonable way to pick up temperature and humidity magnitudes with the Arduino.

ESP-8266 12N Wi-Fi module Receives data from the sensor board and sends data to the serverandwe can access it with out Mobile application so, that we could take immediate Action.

Same way HC-SR04 ultrasonic Distance sensor Measures and Detects Objects in its path and measure distance i.e. how far it is, Its shape, size etc. and ESP-8266 12N Wi-Fi module Receives data from the sensor board and sends data to the server and we can access it without Mobile application so, That we could take immediate Action, driver or any other Means will be alerted in the way that some animals in passing or crossing the borderline!

Also, This GPS-Arduino based Tracking and Alarm system for protection of wildlife animals [8], This may be acting as a deterrent to various anti-social activities poaching, train delays, railway accidents and threat to man due to the drifting out of the faunas off their dwelling zone.



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V. CONCLUSION

The practice of technology in safeguarding should be seen as influence that can alter the work of researchers from across all fields interested in the protection of species.

Also as illustration in [9] GPS technology is also used in determining relationships among social animals ! As they Experimented upon some elephants (Zoo of Sandiego) and Results came true Hence want to conclude that bringing GPS technology in action we can track their movements using camera trapping system for animals ecology [10] , automatic Recognition for Wildlife Monitoring Images[11]! And further we can do this all in one mobile applications and control for wildlife Conservation.

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