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## Smart Drones for a Smarter Government

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# Smart Drones for a Smarter Government

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## Situation:

- Countless rules and regulations applied to residents leads to failure in following mandatory procedures
- The Government and the people are forced to spend time and money rectifying the problem
- Using drones as a means of transportation can help eliminate problems encountered by the people.



## Construction

### Problems and Solutions:

Where will the drone land? Is it costly?

- Building a network of landing stations in each sub community
- Initial high cost however, very low operating and maintenance costs.

### Evaluations:

- Landing stations in every sub community with a walking distance not longer than 5 minutes as shown in Fig [1]
- Benefits outweigh the high initial cost and the annual operating and maintenance costs.



Figure 1 – Landing Spots in a Community

## Systems

### Problems and Solutions:

Drones must land and take off smoothly, maneuver against the tall buildings and avoid collisions

- Availability of control systems will enable safe takeoff and landing
- Installing sensors will allow it to maneuver past tall buildings.

### Evaluations:

- Landing and taking off is safer and smoother using control systems like the one in Fig[3]
- Flying height of the drone will be judged by the sensors and as a result collisions are avoided

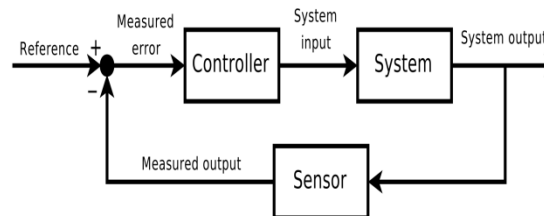


Figure 2- Sensor and Control System  
Credits: <http://learn.parallax.com/pid-control>

## Engine

### Problems and Solutions:

The type of engine used to power the drone should be efficient and release minimal levels of pollution.

- Implementing the use of Steam Engines in order to power the drones

### Evaluations:

- Releasing only a small amount of pollution making it more environmentally friendly
- Incurring less costs than if a different engine were used, e.g. hydrogen fuel –cells
- Recycling any unused or left over water so there is no waste.

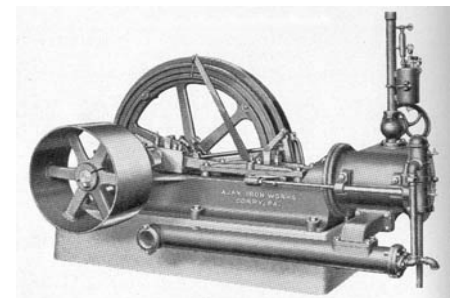


Figure 3- Image of a steam engine  
Credits: [www.petroleumhistory.org](http://www.petroleumhistory.org)

### **References**

- [1] L. Meyer, "Profile of the Dubai metro," *Civil Eng. : Mag. South African Institution Civil Engineering*, vol. 15, p. 39, Sep. 2007.
- [2] "Rise of the drones: aid by air," *Philanthropy Age*, February 6, 2014. [Online]. Available: <http://www.philanthropyage.org/2014/02/06/rise-drones-aid-air/> [Accessed Feb 10, 2014].
- [3] J. Twist, "steam engines could be eco hope," *BBC News*, December 28, 2004. [Online]. Available: <http://news.bbc.co.uk/2/hi/4076811.stm>. [Accessed Feb 28, 2014]