

## Abstract

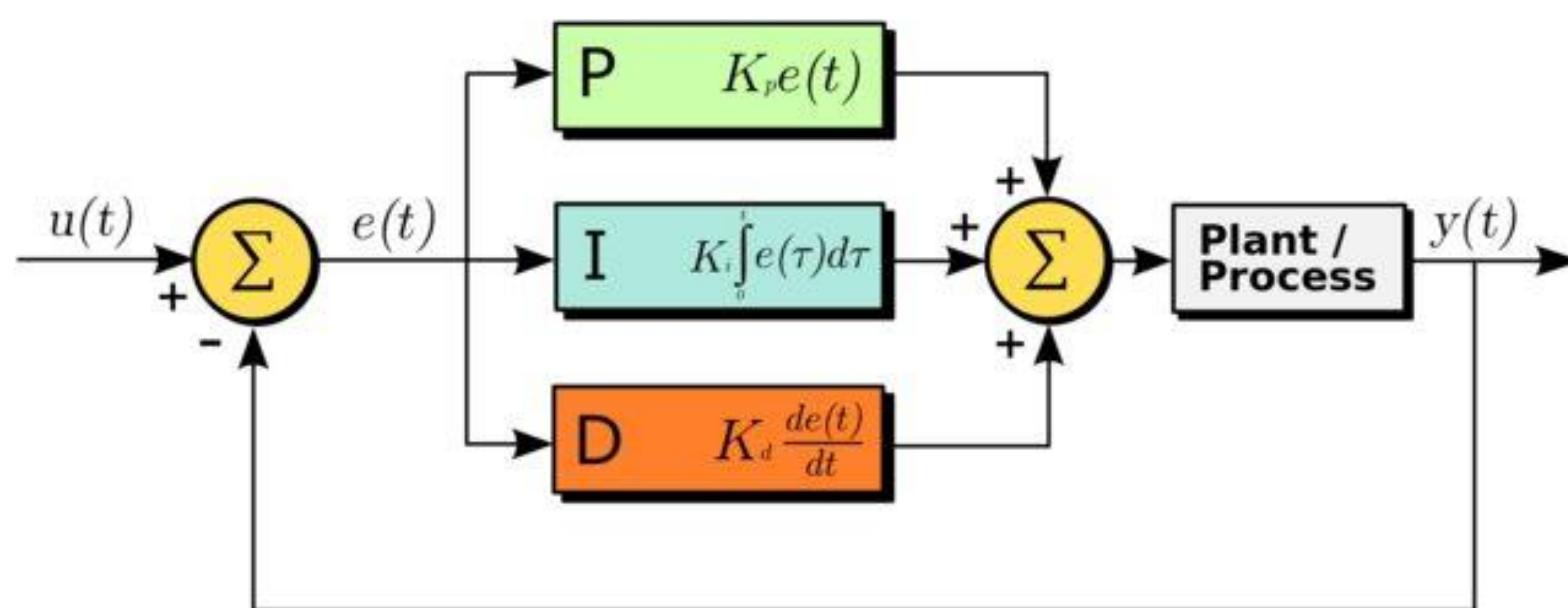
Drones are becoming an everyday item in society, made with a specific set of hardware. This hardware, after a duration of time, finds itself to be obsolete compared to the current hardware available today. This process is unsustainable and uneconomical. Our groups response was to develop the very first drone autopilot to run on android hardware.

## Stabilization

```
while(sensors are being read){
    choose target value to stabilize;
    perform PID calculations;
    send new values to Arduino via string;
    Arduino translates string to ESC
```

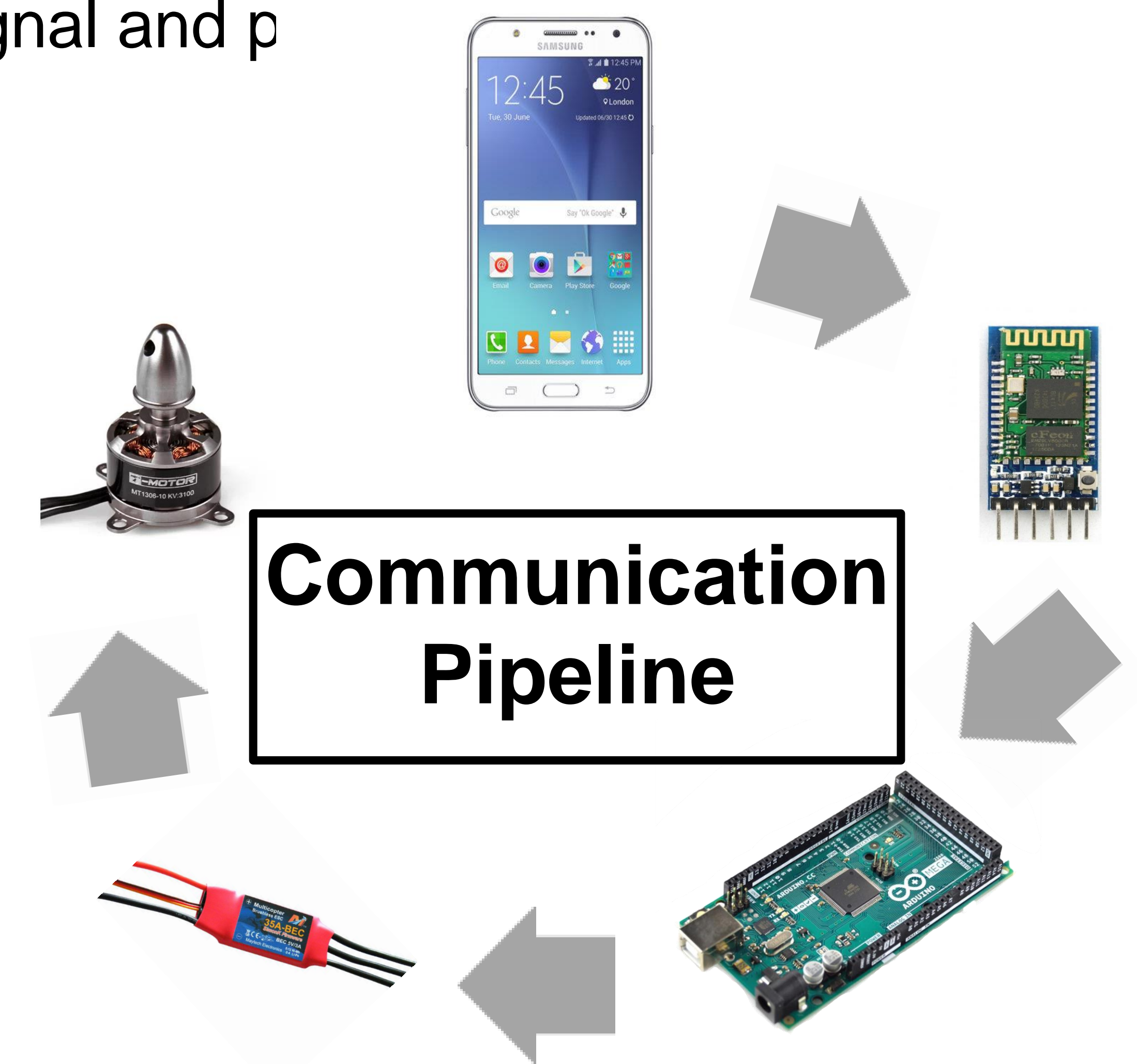
outputs

```
}
|
```



## Communication and Process

- ❖ Android gets necessary values from internal sensors
- ❖ Android PID calculates correct values to send to Arduino board
- ❖ Arduino accepts values and distributes to the correct ESC
- ❖ ESCs are powered by a power distribution board fed by an 11.1 V battery
- ❖ ESCs connected to each motor interpret signal and p



## Workflow

Designed and built a quadcopter drone from scratch.

Developed an app that reads and displays numerical values of the Android's gyroscope and accelerometer.

Implemented a PID Controller within our app to read the current phone sensors to calculate an output value.

Created code for an Arduino to grab the data calculated from the Android which is then sent to the drone's ESCs.

## Results

- ❖ Successful Android to Arduino communication
- ❖ Created Android PID to stabilize drone
- ❖ First of its kind

## Future Goals

- ❖ Continue to develop our app and keep it updated.
- ❖ Add even more features such as battery monitor, return home function, etc.