

# AMSAT 2011

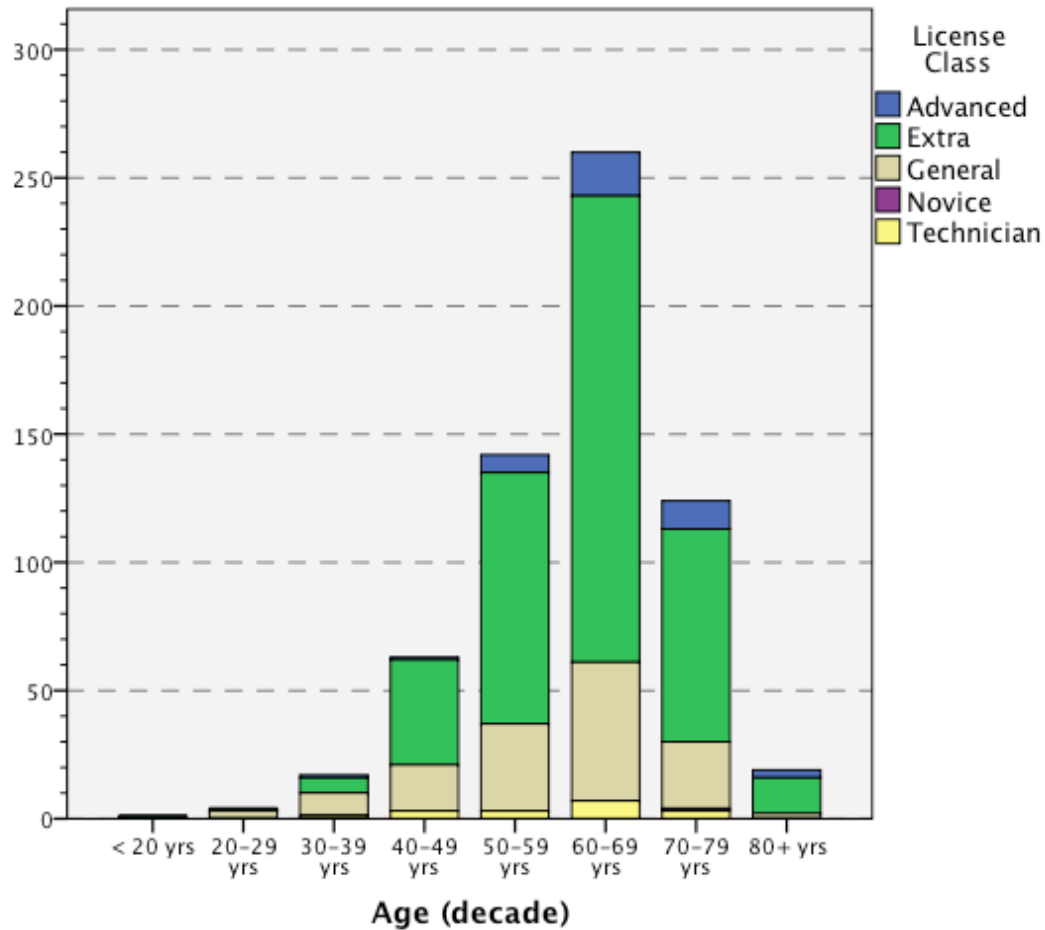
## Light a Candle

- Nick Pugh
- K5QXJ
- [k5qxj@amsat.org](mailto:k5qxj@amsat.org)



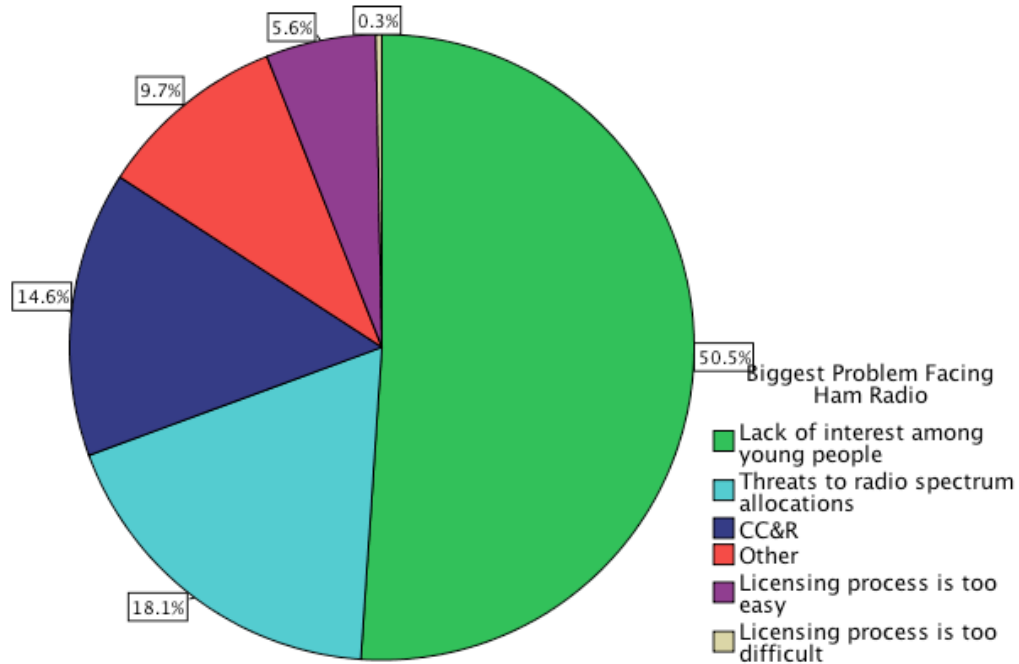
# Types of Hams

- Red Necks
- Cajuns
- Tinkers
- Old Farts



# Threats

Biggest Threat Facing Ham Radio



# You Have a Choice

- Curse the Darkness
- or
- Light a Candle

# What Can We DO?

- Somebody lit the fires that burned in
  - Karl Jansky-- The father of radio astronomy
  - Joe Taylor-- Astrophysicist
  - Jolson Bell -- Discovered Pulsars

My epitaph “he lit a few fires”

# Middle School Demo Handheld



# Middle School Demo Satellites





# Middle School Balloon project



# Middle School Balloon project



# FUNcube Dongle





# Arduino

Cost < \$30

13 GPIO ports

6 analog ports

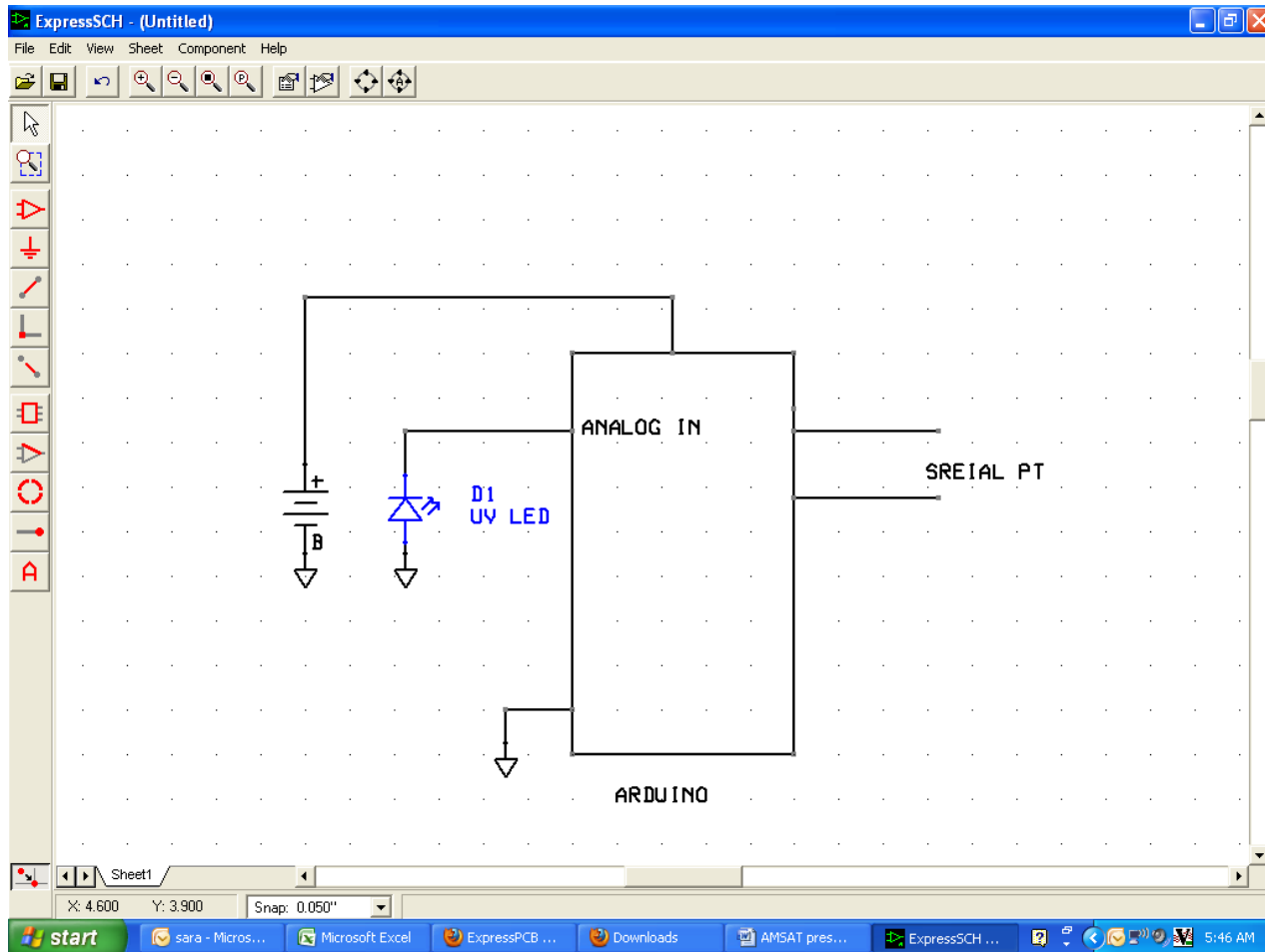
I<sup>2</sup>C & SPI ports

USB interface

Built in programmer

Easy to program

# Remote Sensor UV Detector

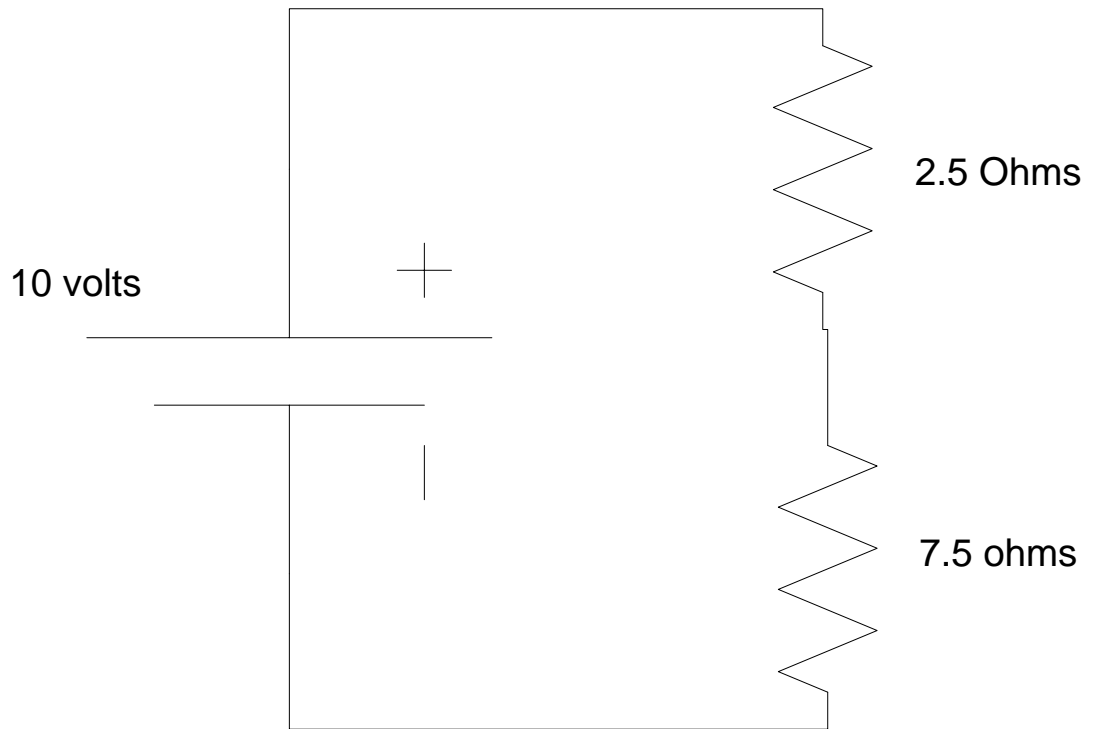


# Remote Sensor UV Detector Code

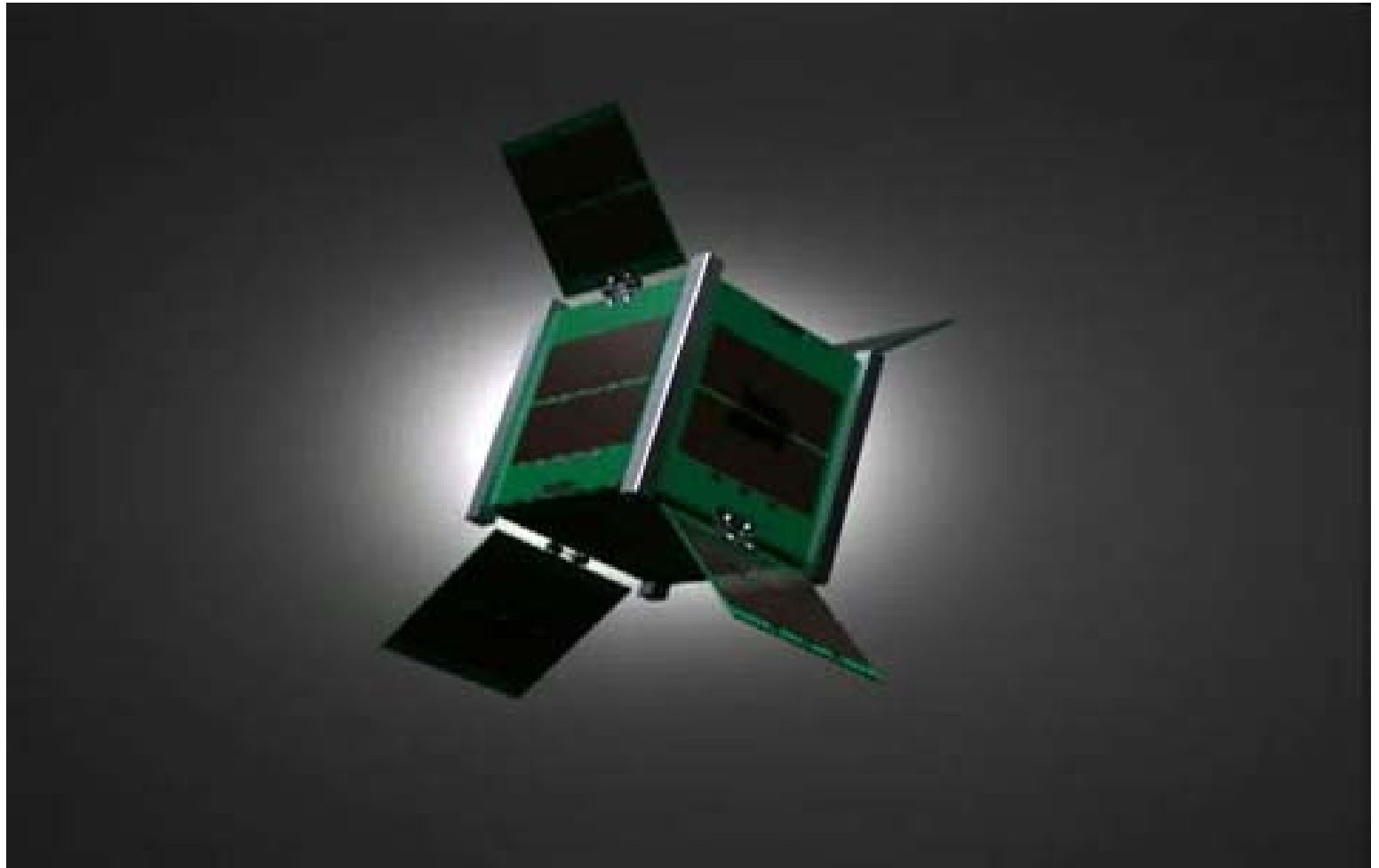
- `Variable =Analog.read(1); // read analog on channel 1`
- `Serial.print(Variable); // print the results`

# Universities Need Help

- Know Ohms Law
- Have trouble applying it



# Universities





# Capstone Projects

- Most Engineering School Require Projects
- Most Schools Want Industry Mentors
- Satellite Projects are Sexy
- Most School are Weak on the RF
- Here is where AMSAT can help
  - Be a Resource
    - RF—Ground Stations—Where to go

# Capstone Projects

## Our Ride to MEO

Educational institutions get cheap launches

The form factor for launches is 3u CUBE

There are propulsion systems for 3u cubes

NASA is still nervous about propulsion  
systems

# MEO and Beyond

- Resolve to go
- Seek to find an educational institutional partner
- Push the propulsion envelop
- Take reasonable risk
- Push the safety issue
- Find the technical and financial resources

# Parting Comments

- Don't be a old Fart
- Light a few Fires
- Have Fun
- Make a Difference