

Maker Faire New York 2016:

Google Summer of Code and BeagleBoard.org



Google
Summer of Code

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What is Google Summer of Code?

"Google Summer of Code is a global program that offers **students** stipends to write code for **open source projects**"



What is Google Summer of Code?

- 12 years
- 104 countries
- 567 open source projects
- 12,000+ students
- Over 30 million lines of code



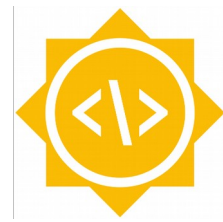
Google Summer of Code 2016

- 178 open source projects
- 1,206 university students
- 67 countries
- 1,032 students (85.6%) completed
- **\$5,500** to each successful student





2016 GSoC Timeline



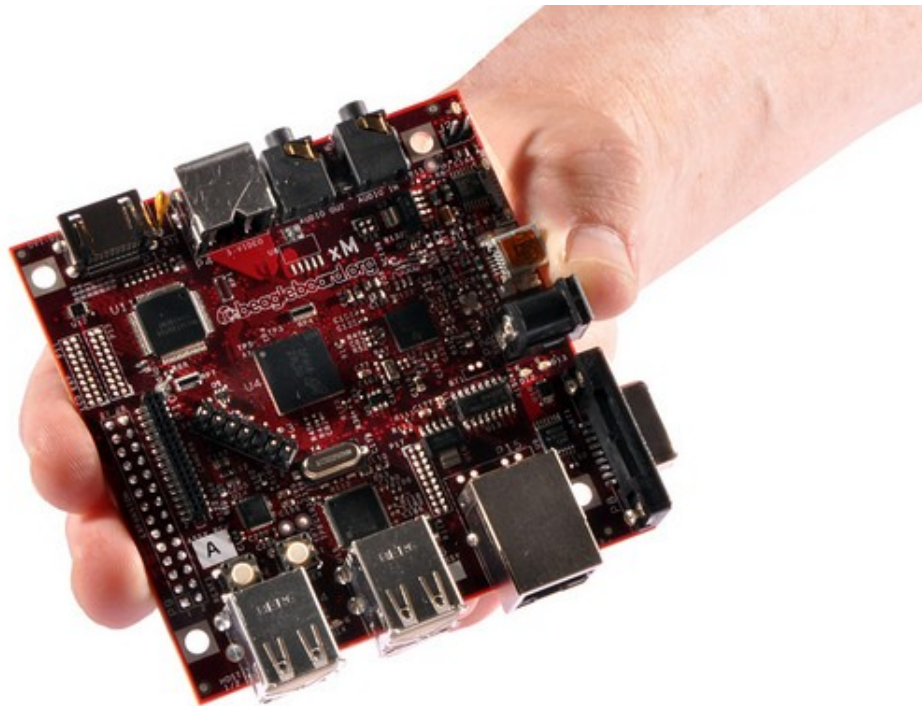
- **Feb:** organizations apply, recruit mentos
- **March:** students propose projects
- **April:** students accepted
- *Community Bonding Period* for students and mentors
- **May:** students begin coding
- **June:** mid-term evaluations
- **August:** final evaluations and project submissions
- **October:** Mentor Summit at Google



Open Source Hardware computing
for
Makers, Educators & Professionals

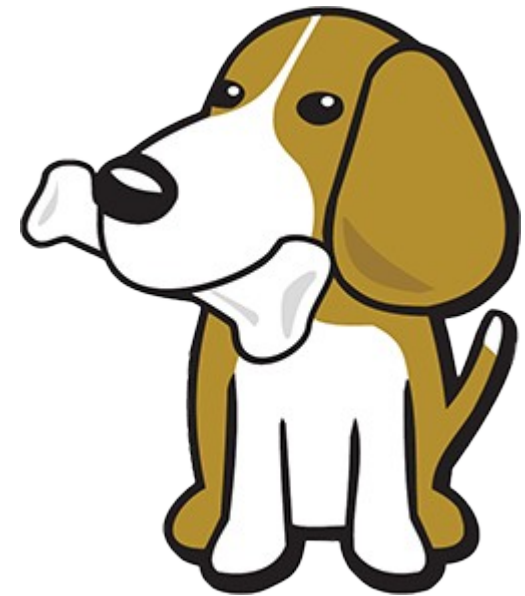


BeagleBoard.org released the first **BeagleBoard**, an affordable, open hardware computer in **2008**





Maker focused, Altoids tin sized
BeagleBone introduced in **2011**





More affordable, more powerful
BeagleBone Black in 2013





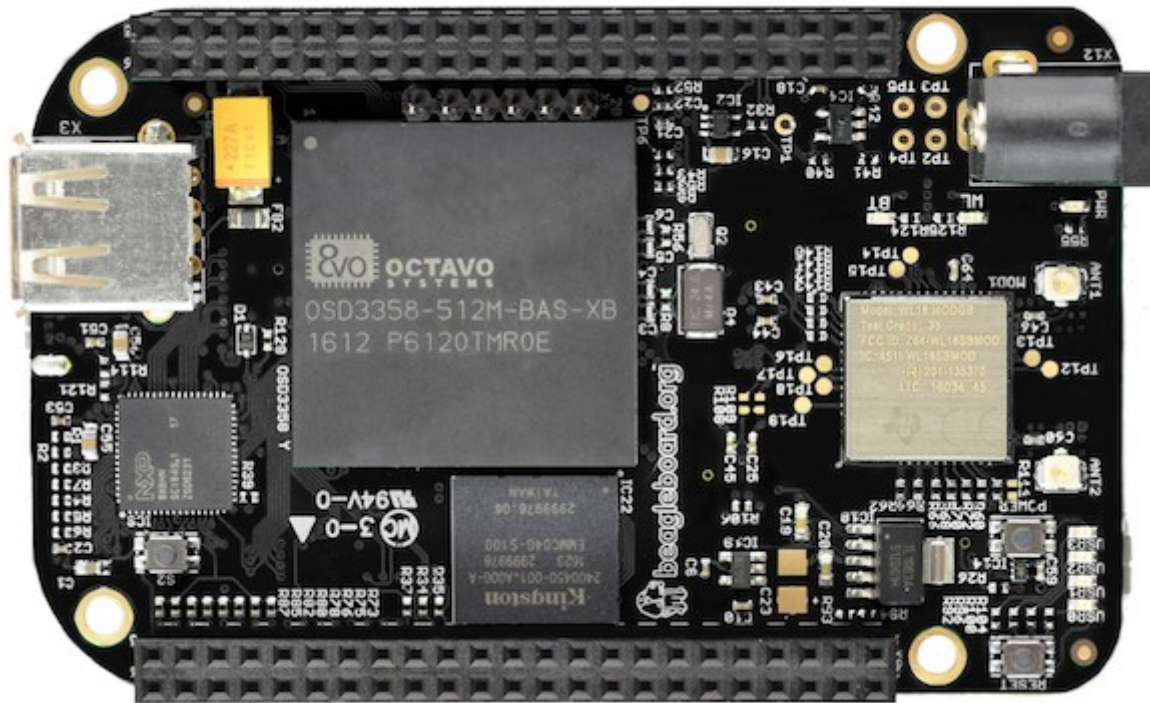
Open Source Hardware BeagleBone derivatives

	Capes	HDMI	Flash	Special
BeagleBoard.org BeagleBone	Y	N	N	JTAG
BeagleBoard.org BeagleBone Black	Y	Y	Y	-
Arrow BeagleBone Black Industrial	Y	Y	Y	Industrial
Element14 BeagleBone Black Industrial	Y	Y	Y	Industrial
SeeedStudio BeagleBone Green	Y	N	Y	Grove
SanCloud BeagleBone Enhanced	Y	Y	Y	1GB, 1Gbit, wireless
BeagleBoard.org BeagleBone Blue	N	N	Y	Robotics
BeagleBoard.org BeagleBoard-X15	N	Y	N	Big jump in CPUs and I/O



New at Maker Faire!

BeagleBone Black Wireless



- **WiFi (802.11 b/g/n)**
- **Bluetooth 4.1 with Bluetooth Low-energy**



- **BeagleBoard.org Foundation** is a US-based 501(c) non-profit corporation
- Provides education around the design and use of Open Source Software and Open Source Hardware
- Fosters communication between individuals interested in Open Source

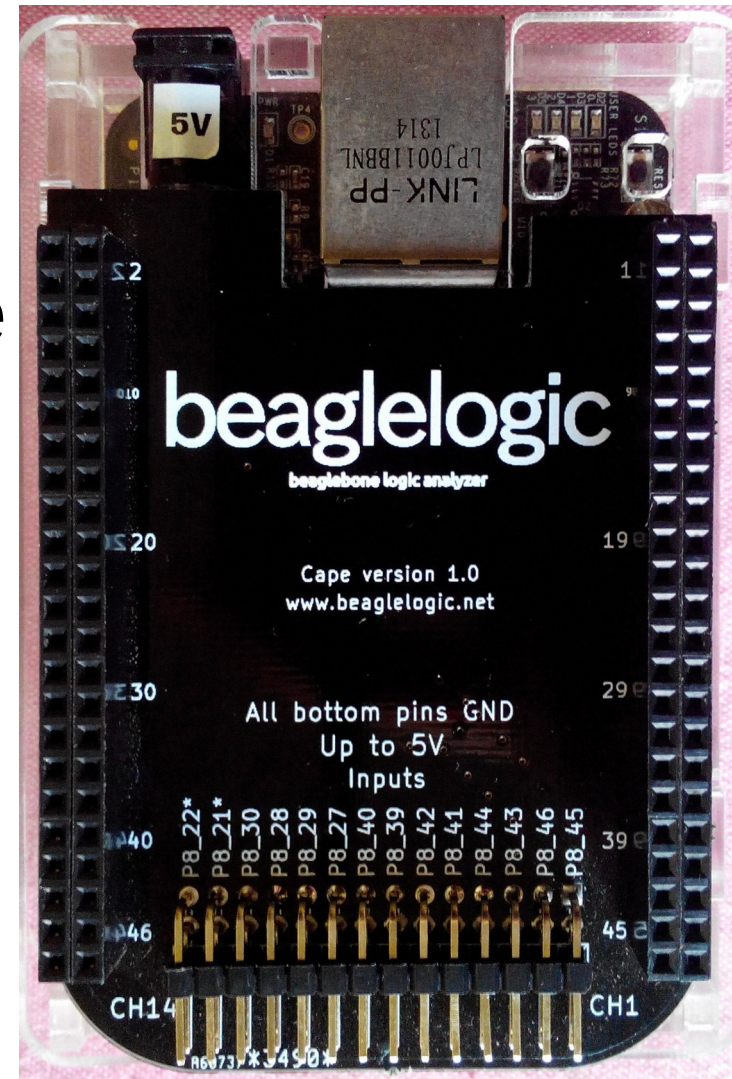


beaglelogic

beaglebone logic analyzer



- **Kumar Abhishek** created BeagleLogic for GSoC 2014
- BeagleLogic turns BeagleBone into **Logic Analyzer**
- 14-channel, 100MSPS
- Web browser user interface
- **Video of final presentation**



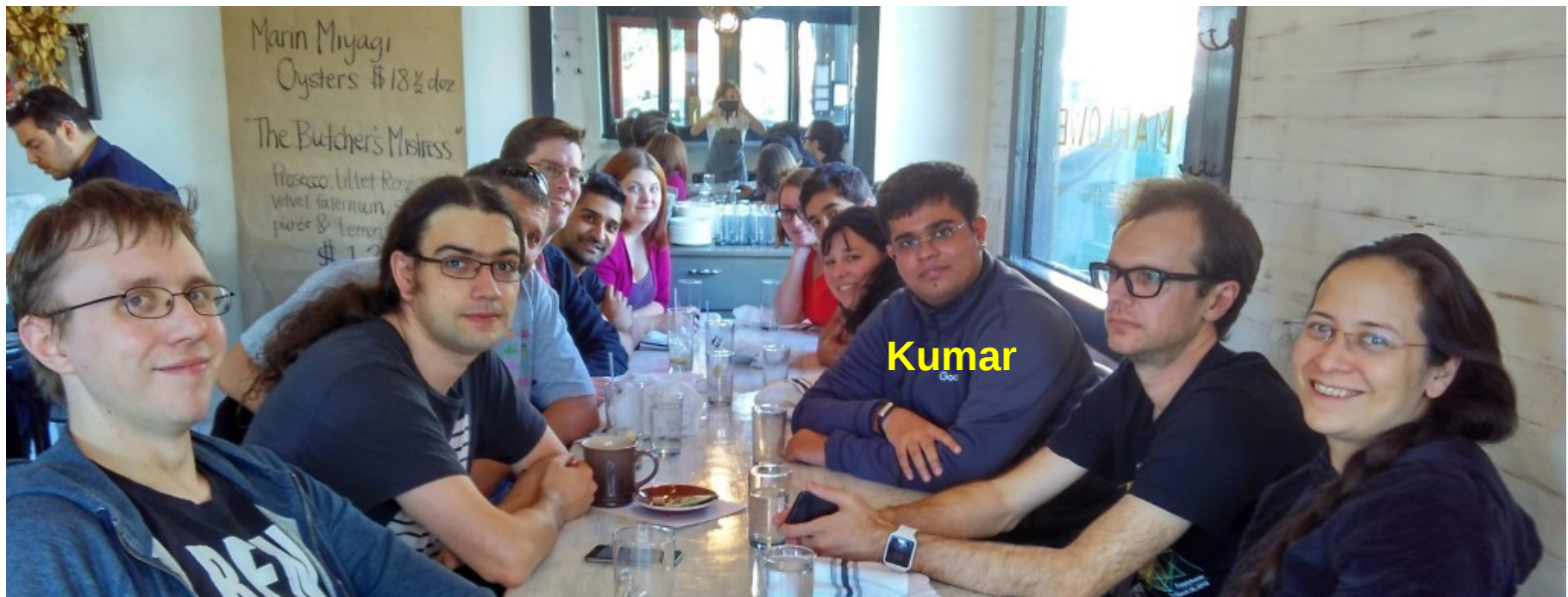


beaglelogic

beaglebone logic analyzer



- **Best Product finalist** in **2015 Hackaday Prize**
- Traveled to Google Summer of Code Mentor Summit and Hackaday SuperCon in California
- Blog post about his journey: *A day with Hackaday*





beaglelogic

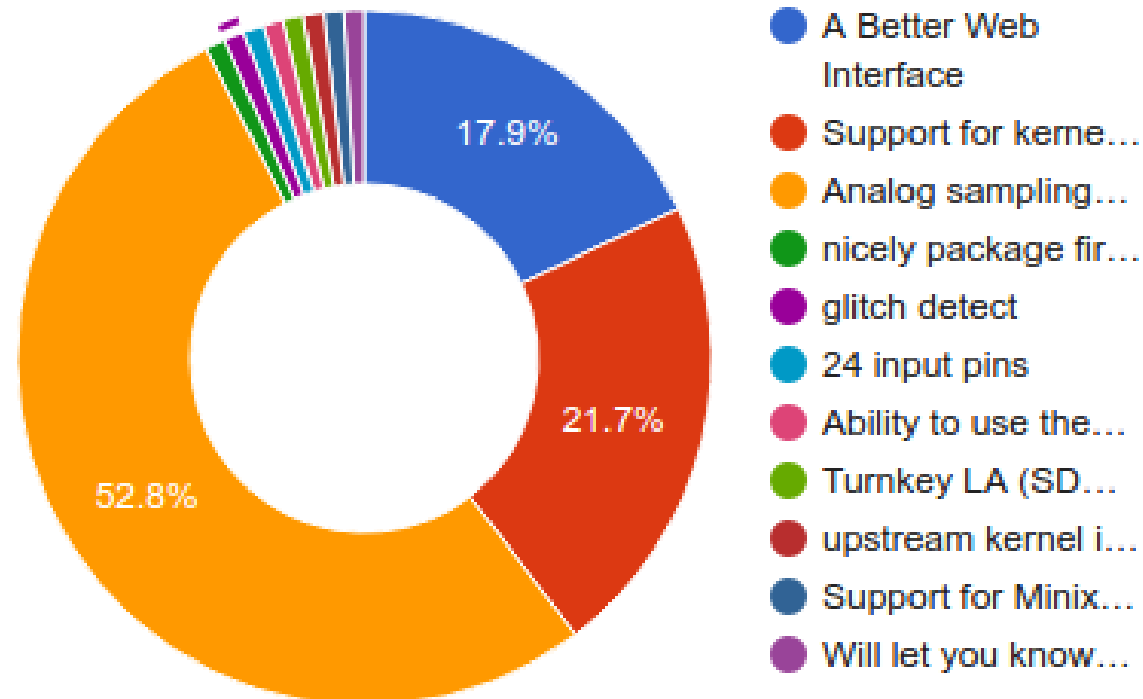
beaglebone logic analyzer



- Summer 2015: Kumar is intern at Google HQ
- July 2015: [BeagleLogic: now also analog](#)

“Majority of prospective users wanted to be able to do analog sampling with BeagleLogic”

Which one of these features would you like to see the most in BeagleLogic?





beaglelogic

beaglebone logic analyzer



- July 2016 - **Google Research** blog announced **PRUDAQ**, an ADC cape for BeagleBone:

Announcing an Open Source ADC board for BeagleBone





BeaglePilot



- **Víctor Mayoral Vilches** in Italy for GSoC 2014
- Linux-based autopilot for flying robots based on BeagleBone
- Introduction video
- BeaglePilot on GitHub
- *The Tale of BeaglePilot*





BeaglePilot



- **Victor** co-founded **Erle Robotics** to develop commercial products based on BeaglePilot
- **Erle-Brain**: “An artificial brain for making robots and drones”

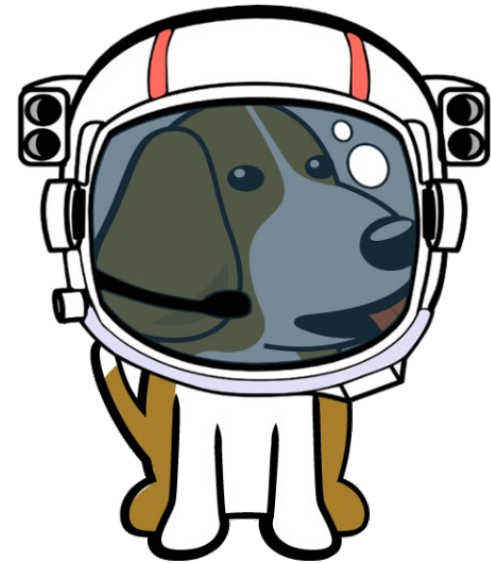




BeagleSat



- **Niko Visnjic** for GSoC 2015
- **BeagleSat** is an open source **nano satellite platform** based on BeagleBone
- Framework & tool set for designing your very own CubeSat from ground up
- [Project video](#)



beaglesat



GSoC 2016 projects



- **BeagleScope**
- Student: **Zubeen Tolani**
- Mentors: SJLC, Abhishek Kumar, Michael Welling, Hunyue Yau





GSoC 2016 projects



- **API support for Beaglebone Blue**
- Student: **Kiran Kumar Lekkala**
- Mentors: Alex Hiam, Micheal Welling, Kumar Abhishek, Deepak Karki
- **Website / Source Code / Wiki / Documentation**

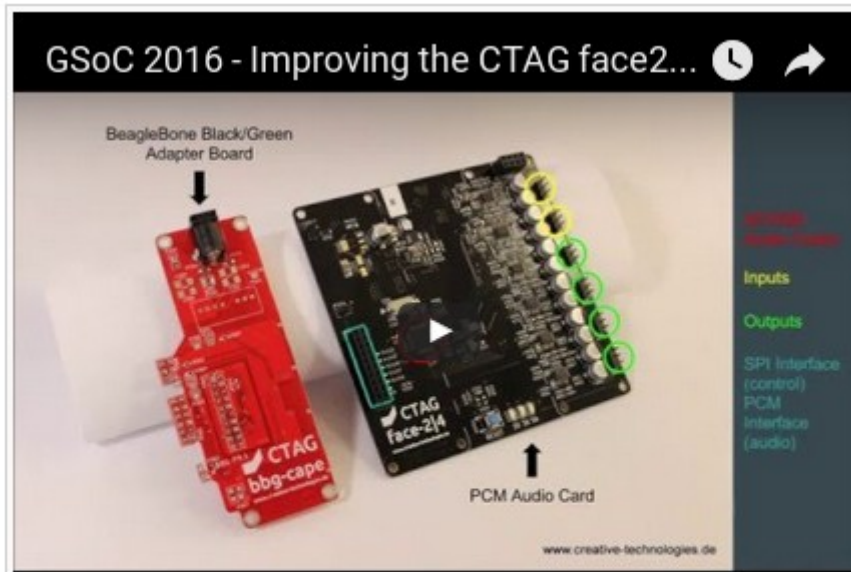




GSoC 2016 projects



- **BeagleBoard X15 multichannel sound driver**
- Student: **Henrik Langer**
- Mentors: Robert Manzke, Vladimir Pantelic
- **Wiki for libdsp-x15**
- **Slides from project presentation**

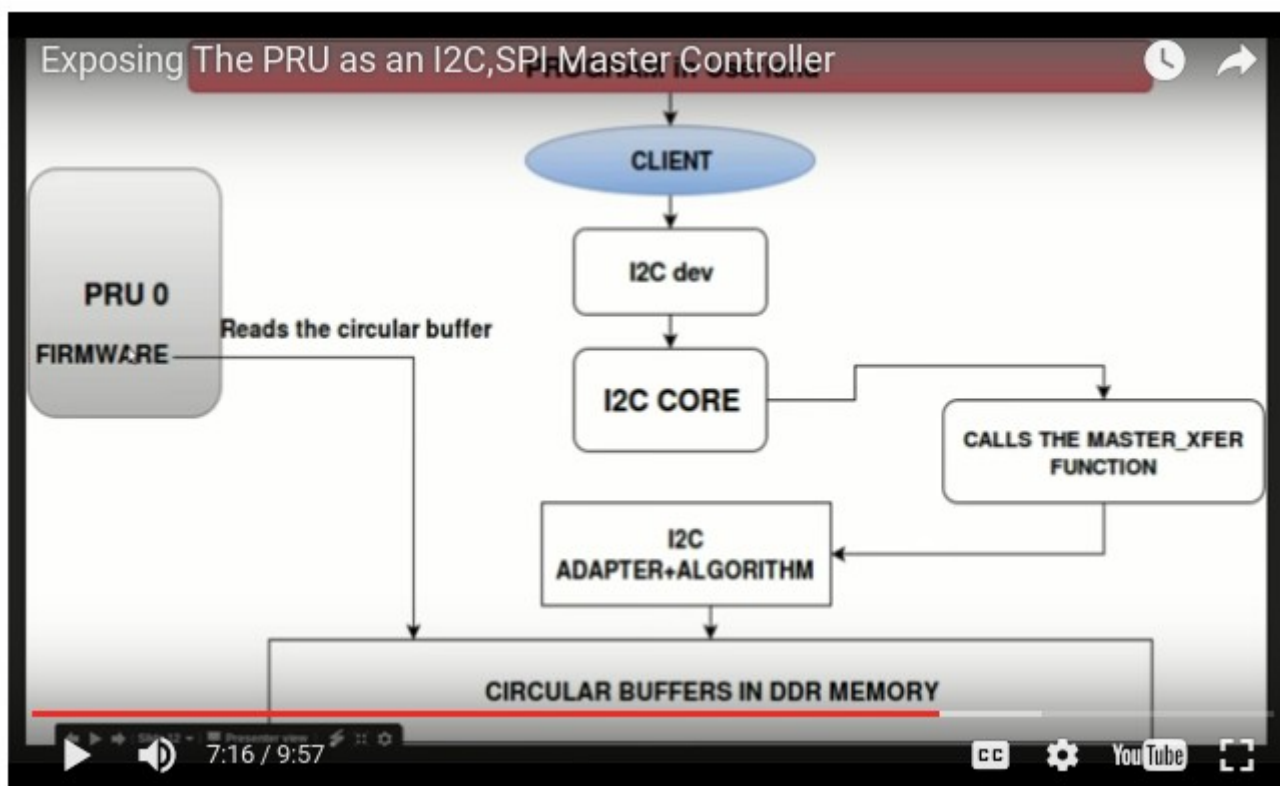




GSoC 2016 projects



- Exposing the PRU as I2C & SPI master
- Student: **Vaibhav Choudhary**
- Mentors: Andrew Bradford, Matt Porter

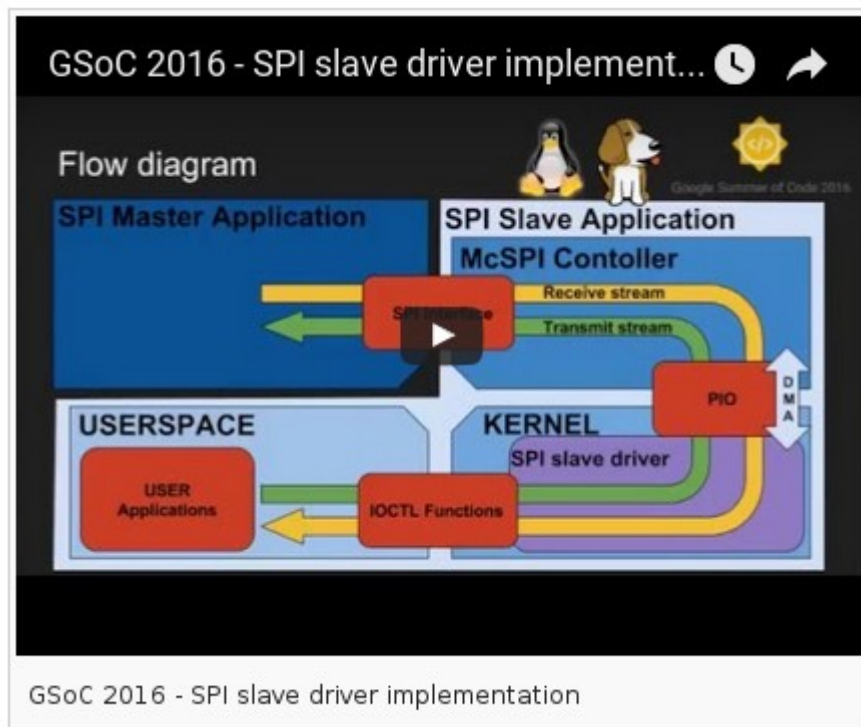




GSoC 2016 projects



- **SPI slave driver implementation**
- Student: **Patryk Mężydło**
- Mentors: Michael Welling, Andrew Bradford, Matt Porter

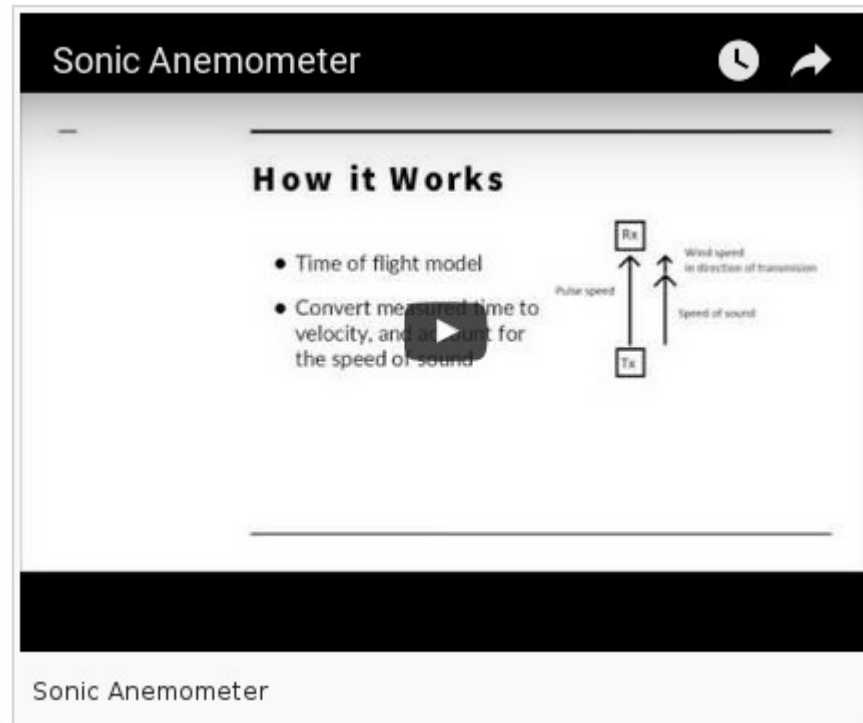




GSoC 2016 projects



- **Sonic Anemometer for Weather Stations**
- Student: **Visaoni**
- Mentors: Steve Arnold, Alex Hiam





GSoC 2016 projects



- **Improving Bone101 Experience**
- Student: **Amr Ragaey**
- Mentors: Jason Kridner, Alex Hiam



Apply in 2017!



Google

Summer of Code

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**Visit our Maker Faire New York booth
this weekend!**