

An Open Source Hardware & Software Online Grid of Weather Stations For Sri Lanka

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Consultative Group for International Agricultural Research

Ratified on October 2nd, 2013

Full Open Access & Open Source

Research data and publication

- ▶ International Public Goods
- ▶ Public Domain
- ▶ Publications Open Access
- ▶ FOSS models and algorithms



Led by



Partners:



2018: all 15 CG centres, already FOSS4G Lab:
gsl.worldagroforestry.org

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For agricultural and hazard monitoring, WMO-level accuracy of weather data is not needed. We are introducing a low-cost weather station based on Arduino for extending the National network of the Meteorological Department in Sri Lanka.

- ▶ Low-cost, locally-made, OSHW weather station
- ▶ National Distributed Monitoring Grid
- ▶ Online Aggregation
- ▶ Mobile/Web Apps

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Micro Weather Station v1:

Meteorological support for Irrigation Department in Sri Lanka, for faster management of rural reservoirs spilling in case of high rain intensity.

- ▶ Lakduino (www.lakduino.com)
- ▶ Weather Sensor Board
- ▶ GPRS Modem Board
- ▶ Data logger with 16Gb micro-SD card
- ▶ Moto battery + Solar Panel



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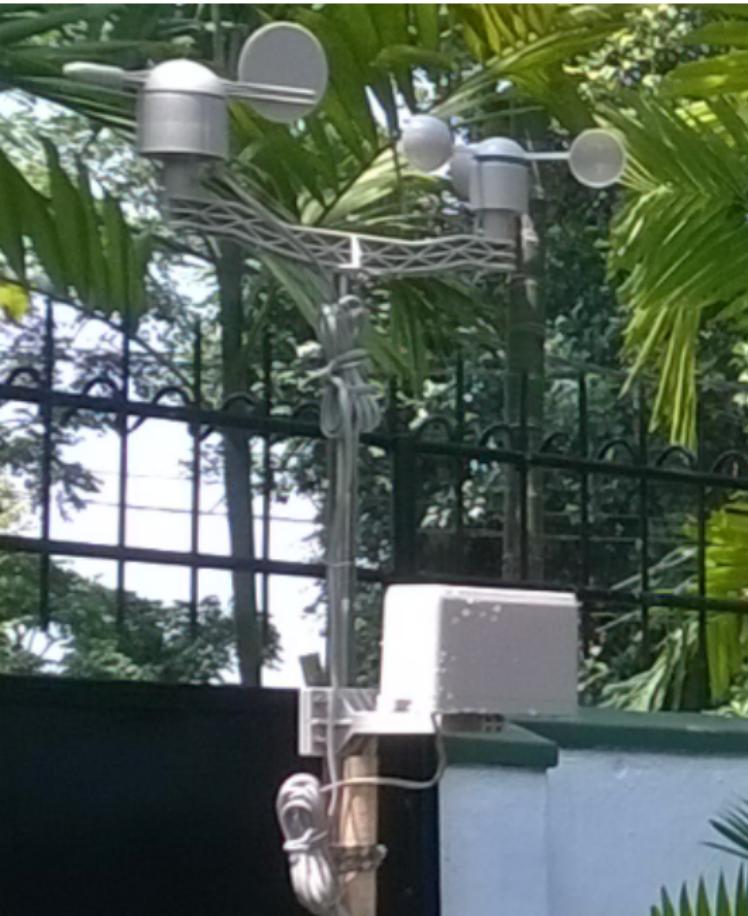
LRWHF

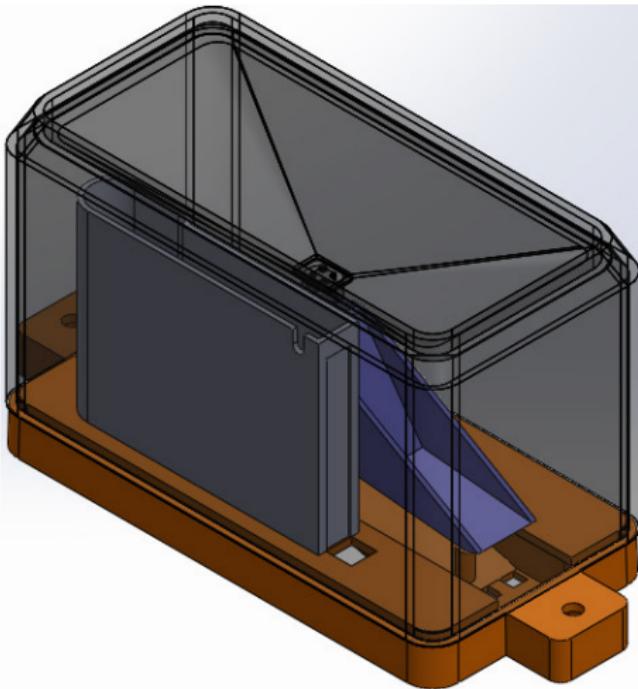
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Chinese made raingauge 3D view
from scion.lk

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Public Domain, locally-designed rain gauge
<https://grabcad.com/library/rain-gauge-design-1>
from scion.lk

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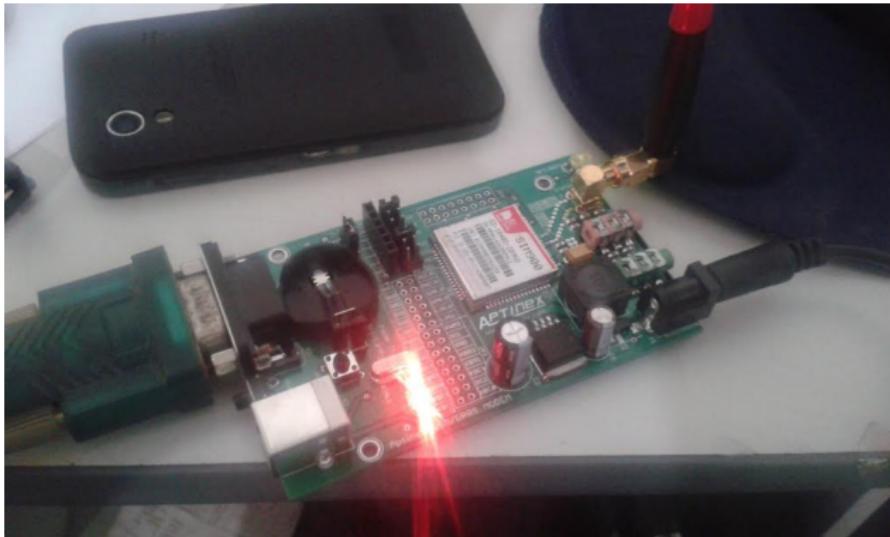
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Lakduino



UP: Weather Sensor Shield
MID: GPRS Shield
LOW: Lakduino



GPRS shield designed now by a local SME

APTInex®

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Made in country by a local SME A&T Labs.
Picture credit: Neil Palmer (IWMI)

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Picture credit: Niroshan Bandara (UoM)



COSTI (www.costi.gov.lk) is catalyzing the proposal for the National Climate Observatory.
Test in the Met. Dept. in Colombo (on-going).

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Lanka Rain Water Harvesting Forum

ලංකා උගි ජළය රැක්තුරුහෙමයේ සංස්දුග්‍රැම இலங்கை மழைநில் சேகரிப்பு அமையம்



LRWHF built 10 units (+5 units for spare parts) under their main USAID project for monitoring the assistance of CKDu stricken villages in drinking rainwater.

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4 Deployed with training in May 2015.
6 more in July across country.
Operation/Maintenance trainings, schools & outreach.

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Operation/Maintenance training in Monaragala
for schools students and teachers who went back with a unit.

Electronic SMEs and start-ups were engaged from the beginning of our search for local availability of components/parts.



Aptinex

February 6 ·

Its always real nice to see our products to be used in customer projects and R & D scenarios...

Lakduino which is Sri Lankan version of Arduino has been used in the R & D of International water management Institute .. We highly appreciate Dr.yann Chemin for introducing our product..

http://www.academia.edu/.../An_Open_Source_Hardware_and_Softw...



An Open Source Hardware & Software online raingauge for real-time monitoring of rainwater...

The rainwater harvesting network is in need of volumetric estimation of rainfall-runoff contributed...

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Local and international media helped our business partners marketing outlook and growth.

The collage includes the following news items:

- Sci Dev Net**: Bringing science and development together through original news and analysis. Headline: "Mobile weather stations for Sri Lankan farmers". Subtext: "Cheap mobile weather stations to help farmers predict rainfall and adapt to climate change."
- ASIAN SCIENTIST**: News and information from the asian scientific community. Headline: "Sunday Island". Subtext: "Sunday March 15th 2015 Online". Article: "Cheap and easily-buildable mobile weather stations being tested here".
- BUSINESS INSIDER**: Headline: "Mobile weather stations for Sri Lankan farmers". Subtext: "Cheap mobile weather stations to help farmers predict rainfall and adapt to climate change."
- REUTERS**: South Asia Environment Portal. Headline: "Sri Lanka phone to forecast rain". Subtext: "Scientists in Sri Lanka have developed mobile weather stations to capture and transmit near real-time rainfall data readings the devices log on to global positioning satellites (GPS), automatically."
- REUTERS AFRICA**: Headline: "Mobile technology helps Sri Lanka cope with climate change". Subtext: "The devices are based on standard, WHO-certified ver."
- Down To Earth**: Headline: "Mobile technology helps Sri Lanka cope with climate change". Subtext: "The stations are powered by a single solar panel and there are already 50 more in partnership with the Lanka Rain Water Harvesting Forum, say officials."
- SUNDAY OBSERVER**: Headline: "Mobile technology helps Sri Lanka cope with climate change". Subtext: "The stations are based on standard, WHO-certified ver."
- ANTARA NEWS**: Headline: "Getting the better of bad weather". Subtext: "The stations are based on standard, WHO-certified ver."
- CLIMATE ACTION**: Headline: "China Climate Change Info-Net". Subtext: "China hopes to connect the devices to Sri Lanka's mobile phone network. What is essential is to create a 'community of learning' through mobile buildings to double up as emergency shelters."
- Business Insider**: Headline: "Cheap and easily-buildable mobile weather stations being tested". Subtext: "The stations are based on standard, WHO-certified ver."
- ThienNhien.Net**: Headline: "Cheap and easily-buildable mobile weather stations being tested". Subtext: "The stations are based on standard, WHO-certified ver."

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**INTERNATIONAL COMMITTEE
OF THE RED CROSS**



WORLD BANK GROUP

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An Open Source Hardware/Software Low-Cost Weather Station

- ▶ **Arduino:** Micro-controller
- ▶ **Sensors:** Rain, wind, temperature, humidity
- ▶ **Local:** 90+ % made in the country of use by SMEs
- ▶ **Local:** Maintenance & spare parts with local SMEs
- ▶ **Local:** Local shop sells rural solar power kit
- ▶ **Local:** Local blacksmith for steel work

We work with a rural tank manager from irrigation department for realtime rain alerts.

Red Cross is evaluating the concept for a project in Togo.
Other countries are evaluating for other applications.

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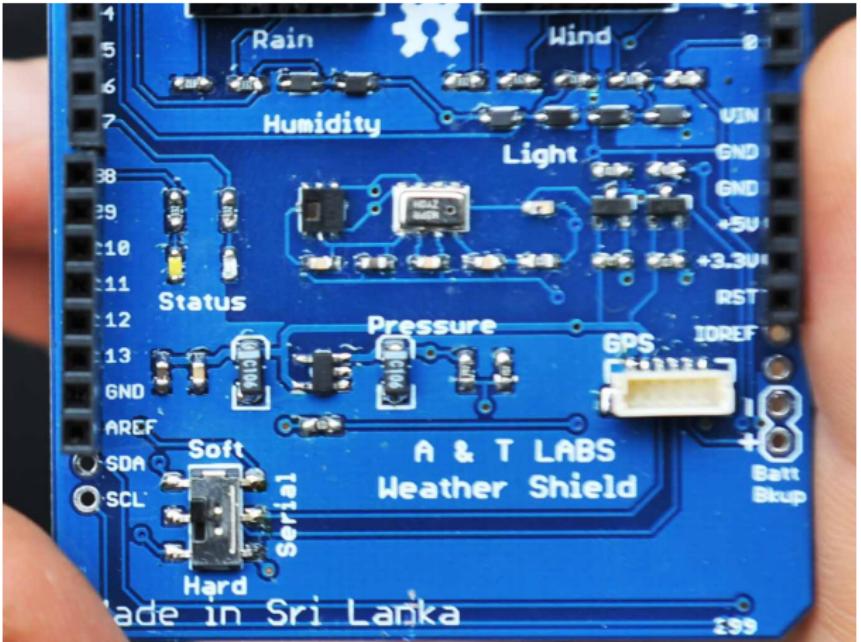
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