Parents and teachers should create a positive atmosphere for children to foster the spirit of invention. Students must continue this good habit in future.

Students enjoy these activities more than academics. Harish Hande and Selco team is motivating students to do inventions to solve social problems so students can channelise their enthusiasm and interest towards newer things.

What started as a light for education programme, evolved through stages of digital education programme and finally invention education and sustainable science lab. The work has just begun and there's a long way to go– for this to reach many more schools and finally be mainstreamed.
Introduction
Invention Fair is an end of the year showcase of Invention Education and Sustainable Science Labs programs run in 15 schools across Belthangady, Yadgir and Muthur.

This year students identified issues across areas of agriculture, day to day tasks at home and work, safety and health, water management and energy. They created initial prototypes, tested them with community members and arrived at final models that got exhibited in the Invention Fair.

Most of these students come from modest backgrounds and under-resourced schools. Their choice of problems to work on and use of mostly recycled and locally available materials reflected a sensitivity to their surroundings and empathy for problems faced by those around them. Be it the issue of fuel saving stoves, effective management of water, appropriate irrigation techniques, the problem of crop-raiding by animals, concerns around pure drinking water, the breadth of topics tackled reflected a keen enthusiasm for connecting what is learnt in school and through books with the problems that are faced on a daily basis and providing effective solutions for them.

The fair was visited by students as well as faculty members from schools and colleges nearby.

Mr. Krishna Shetty, Warden of Rathnamanasu
We should thank Rotary club and Selco foundation for visiting villages and helping students of villages innovate and finally come up with these models.

Mr. Swamy, Principal of D.Ed college
We saw many innovations and ideas here, students should continue these in college life and have to develop it further.

Mr. Krishna Murthy, Principal of Residential PU College
Like Thomas Alva Edison, we should posses enthusiasm even if we fail thousand times while inventing new things.
Invention Education

A program conducted in government schools to sow the seeds of invention in the young minds of children who will eventually be effective contributors to inventions for sustainable villages in India.

‘Invention Education’ programme impacts 700 + children, across 13 government schools in Yadgir and Belthangady in Karnataka

The state of Karnataka

Yadgir
- GHPS, Warkanalli
- GHPS, Koyilur
- GHPS, Abbetumkur
- GHPS, Killanakera
- GHPS, Ashnal

Belthangady
- SDM, English medium school, Ujire
- GUPS, Thotathadi
- GUPS, Kiloor
- GUPS, Bayalu
- GUPS, Belthangady
- GUPS, Barangaya
- GUPS, Guripalla
- GUPS, Odinala
Sustainable Science Labs

A program introduced in government schools to expose the students to a variety of challenges related to environmental and sustainability issues that are specific to Muthur. Our focus is not just on alternative energy solutions, but also on holistic, sustainable living practices.

The sustainable science lab programme is for students of classes VI to IX of the Government Schools. A facilitator from the community has been appointed to guide students through the process. Certain themes or topics of relevance to sustainability and the local environment have been chosen. Students gain a rich understanding of the concepts through exploration, hands-on activities, field visits and talking to domain experts. These themes have been mapped across their school curriculum, so that the activities in the lab complement and enrich what they are required to learn as part of the regular curriculum.

‘Sustainable Science Labs’ programme in Muthur in Karnataka, impacts 130 students across 2 government schools

- Muthur
  - GHPS, Muthur
  - GHS, Muthur

Bangalore City
Agriculture

**Seed quality testing**, Pooja, Pritviraj, Roja | GMPS Belthangady

**Boom sprayer**, Sharath | GMPS Belthangady
This pump has 4 nozzles to cover a greater area subsequently reducing the labour requirement

**Mango remover net**, Mallappa | GHPS Varkanalli

**Garden plough**, Sudarshan | GUPS Barengaya
A tool that makes the maintenance of the school kitchen garden easy

**Garden plough**, Devaraj | GHPS Koyilur
Manual Plough made from discarded school bench and old cycle

**Grass cutting machine**, Yashwanth | SDM School

**Grass cutting machine**, Roopesh | GHPS Ashnala

**Soil erosion**, Nitesh | GUPS Bayalu

**Areca de-husking**, Vikas Bhat | GUPS Barengaya
Protector of crops, Sunil, Ashish, Ashwin | SDM School

Farm irrigation and scare the animals without electricity, Sukesh | GUPS Tottathadi
Protect crops from wild animals and irrigate the farms as well

Pesticide pressure Tank, Chaithra | GUPS Odilnala
Manual pump adds pressure that ensures that insecticide can spray for longer

Protector of crops (LED insect trap), Gautam | GMPS Belthangady
Box; Rs 30-40, Fan; Rs.50 + discarded charger

Protector of crops (crackers), Shankara | GUPS Koyilur

Hanging garden, Ushalata | GUPS Tottathadi
Hanging gardens for cities where space is limited.

Hanging garden, Moksha | GUPS Guripalla
Hanging gardens for cities where space is limited.

Water saving planter, Vishwanat | GHPS Ashnala
Water saving planter that utilises capillary action can water small indoor plants; stores water for 22-24 days

Water saving planter, Bheemraya | GHPS Ashnala
Can be used for crops such as mangoes, coconut & helps prevent soil erosion
Agriculture

Mobile Sprinkler,  
Zunaid | GUPS Tottathadi

Hydroponics,  
Suneeth | GUPS Killoor
**Utility items**

*Air conditioner, Pillinga | GUPS Killankera*
Using paint containers + a discarded battery (Rs. 180) from a 2 Wheeler + new exhaust fan (Rs. 130), ice has to be bought from a shop; generated project capital by selling waste glass bottles.

*Air conditioner, Bheemaraya | GUPS Killankera*

*Laptop cooling pad, Sindhushree | GMPS Belthangady*

*Hydraulic JCB, Mahesh | GUPS Ashnal*

*Solar umbrella, Sumanth | GUPS Balayu*
6 Volt Rechargeable battery Rs. 175 (inside torch), At night it rains when villagers head to the farm to keep a watch. It is difficult to carry an umbrella with torch and dinner.

*Butter Churner, Chaithra | GMPS Belthangady*
Low cost model built as there is a need and existing models are costly.

*Remote controlled pulley for well, Sujan | GUPS Bayalu*
Young and the elderly are unable to fetch water from the well on their own. This will help them.

*Hand washing Machine, Parshuram | GUPS Killankera*
Saves water, no electricity required.

*Solution for making bags less heavy, Akash, Noufal | GMPS Belthangady*
Filing system made for carrying only required worksheets and not heavy bags.
Utility items

**PVC clothes rack, Darshan**
GMPS Belthangady
Clothes rack made using PVC Pipe. It can store shoes + Clothes + can add wheels to make it movable + easy to dismantle for efficient storage.

**Jewelry containers made of reused plastic bottles,**
Nireeksha, Varnashree, Varun
GMPS Belthangady
Small jewelry boxes made from discarded plastic bottles

**Midday meal trolley, Prathik, Prajwal**
GMPS Belthangady

**Hot box, Sukanya**
GUPS Barengaya
Low cost model built using cardboard, cotton cloth, and dry hay

**Plastic Rope, Sinchana**
GUPS Barengaya

**Book Stand using old PVC Pipes, Harshitha**
GUPS Barengaya

**Innovative umbrella, Mikshitha**
GUPS Odilnala

**Bamboo Speaker, Sujay**
GUPS Kiloor

**Low cost PCB Drill, K. Kiran**
GUPS Kiloor
Low cost simple microscope,  
Vinay | GUPS Bayalu  
Simple microscope to do experiments & research. The invention was made as there is no microscope available in the school lab, + the invention is useful to practice experiments at home without the need to buy an expensive model  

Matka fridge, Vinay, GUPS Bayalu and Ningappa, GUPS Abbetumkur

Seating made from used tyres,  
Sinan | GMPS Belthangady

Seating made from coiled paper, Mary | GUPS Abbetumkur

Floor cleaner, Yuvaraj | GUPS Varkanalli

Yallapa | GUPS Killoor  
Decorative items made of coiled paper

Decorative materials,  
Niteshkumar | GUPS Bayalu  
Decorative items such as christmas tree decorations & rice measuring cups using discarded plastic bottles
**Safety and health**

**Life Jacket**, Vinod, Soujanya | GMPS Belthangady
Life-jacket is made using discarded plastic bottles

**Security system**, Hardik, Saad Hasanabba | SDM School
Created a two level security alarm system that sounds a first alarm if someone tries to enter a residential property and second alarm if someone tries to open the locker inside the house

**Animal presence warning system**, Bhimraya | GUPS Killankera
When animals move around in the trees, the bottles and stones make a sound creating a warning

**Bamboo raft**, Mohammad Naazim | GUPS Killoor
Boat made using PVC pipes and old discarded chair, Tottathadi floods during the rains and as PVC is cheaper and lasts longer than bamboo that is why it was selected

**Accident avoider**, Bharath | SDM School
A loud beep is emitted when a car goes over a blind turn

**Fire extinguisher**, Pritvirani | GUPS Guripalla
Extinguisher made from a baking soda, and water + vinegar in a bottle.

**Air Gun**, Akash | GUPS Odiinala

**Boat**, Nishanth | GUPS Tottathadi
The protection is made from discarded plastic bottles. Belthangady receives explosive rains which sometimes causes water to enter light bulbs resulting in short circuits. To prevent this from happening this invention was made.

**Bulb protector**, Pavitra | GUPS Guripalla
Mosquito trap made of sugar solution, Sunil, GHPS Abbetumakur
Insect trap using yeast + water + sugar

First aid, Sameena, Unaiza, Rashmitha, GUPS Bayalu

Menstrual health education, Usha, Nikhitha, GUPS Thotthady

UV dustbin, Shreejith, GMPS Belthangady
Light attracts insects inside of dustbin bad + UV also kills bacteria in the garbage

Dustbin from used bottles, Ameer, GUPS Tottathadi
Dustbin made from discarded plastic bottles

Water purification using Moringa seeds, Sharadhi, Rehana, GMPS Belthangady

Matka (pot) filter, Rashmitha, GUPS Guripalla
Outer pot was broken and was re-used whereas the inner pot was purchased
Water management

Archimedes water screw, Ajith | GMPS Belthangady
Manual pump where no electricity is required

Ram pump, Sri Ram Marathe | GUPS Barengaya

Solar distiller, Shri Kara | GUPS Odihala

Water level indicator (using coloured lights), Vikram | SDM School
Different LED signal to indicate different levels of water collected in tank; low, medium, high

Water level indicator (using sound), Pranav | SDM School

Rainfall level indicator, Abhivrudhi | GUPS Bayalu

Hand pump, Manoj | SDM School

Water lifting from a borewell using bamboo Jayaraj | GUPS Bayalu
Water is lifted from bore well using bamboo

Lifting water using bicycle, Gurucharan | GUPS Tottathadi
Hybrid street light Akshay | GMPS Belthangady

Fuel saving stove with flame control, Lavanya | GMPS Belthangady

Innovative stove (fan) Bhavishya | GUPS Odilnala
Has created a charcoal based stove that is connected to a motor and external energy source which eliminates the need to blow while cooking; thereby making the whole process easier

Solar water heater (bottle + drip pipe), Reena | GUPS Odilnala

Waste water management and hydropower generator, Pranam Rai | SDM School

Current generator, Shreyas | GUPS Killoor

Water wheel Ariff | GUPS Bayalu
Home made water wheel could be used to generate electricity

Mechanical generator, Abhikarthik | SDM School

Solar water heater (from discarded bottles), Bhimaraya | GUPS Killankera
Solar Water Heater made from discarded plastic bottles, it creates no mess and the water is very hot and appropriate for a bath

Daylight system, Bannisava | GHPS Abbetumkur
Students queue up to witness inauguration

Maj. General M. V. Bhat, President, Rotary, Belthangady cutting the ribbon

Ms. Santhi, Program manager, Education Lab introduces the facilitator teams from Ujire and Yadgir

Registrations

Participants and visitors leave their feedback on the feedback tree

Participant feedback
Maj. General M. V. Bhat addresses the students, Mr. Azharrudin, Ms Santhi and Mr Suhas look on.

Collecting welcome kits

Low-cost models demonstrating scientific principles, Lifelabs

Dr. Yashovarma, Secretary, SDM Education Trust, Ujjire, pays a visit
Certificate distribution ceremony
Interesting facts about Invention Fair 2016

Invention Areas

Class 6 : Invention Areas

- Craft: 1
- Water management: 3
- Safety and health: 5
- Utility Items: 5
- Energy: 3
- Agriculture: 3

Class 7 : Invention Areas

- Waste management: 2
- Water management: 8
- Safety and health: 8
- Utility Items: 11
- Energy: 3
- Agriculture: 14

Class 8 : Invention Areas

- Water management: 2
- Safety and health: 3
- Utility Items: 7
- Energy: 1
- Agriculture: 8