

### The record of Windnauts 2015

In 2015, We Windnauts attended Birdman Rally. Birdman Rally is longstanding Human Powered Aircraft (HPA) tournament in Japan. We took part in distance section, which is competing in distance from platform to landing on the water. This year, we were favored with fine weather throughout the rally. And get the record...

**35,367m**  
 in 38<sup>th</sup> Birdman Rally

We became the champion in 38<sup>th</sup> Birdman Rally, distance section. This record was the second farthest, the farthest is also our record in 2008, in the successive record. In addition, our fright got 'The Best Birdman prize' and 'The Mayor of Hikone prize.'



### The contrivance of Windnauts 2015

In 2015, we decided on themes 'Win the Birdman rally in any conditions' and 'Safe and reliable management'. At rally, various conditions were assumed. We thought and made countermeasures. And Windnauts is the very student manufacturing project. So we thought how soften economical, healthy and mental programs is also important.

#### Manager

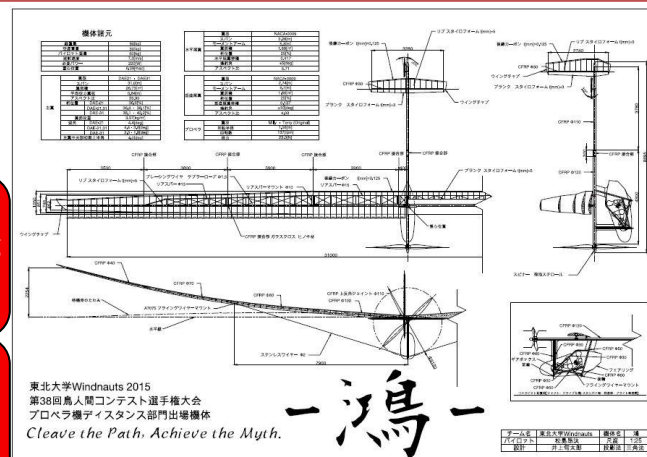
During working, makers could not take care of management. So manager tried to announce some events, a load test for instance, and intermediate between each section. Working is terrible. So he also tried to give advice and do mental care actively.

#### Pilot

There were strong wind from lake to shore around platform. To realize the former theme, the training gives priority to high rotational speed than long time pedaling. To realize the later theme, pilot did health care cautiously and we reliably became aware of pilot is also important component in HPA.

#### Designer

To realize the former theme, design concept put emphasis on a wind above the lake. Our plane designed middle speed and short span. And tail beam made rigidity for raising steering performance.



Gross weight	90[kg]
Pilot weight	57[kg]
Speed	7.3[m/s]
Power	220[W]
Span	31[m]

**Wing part**  
 We made light and rigid wing. It was separated 9 parts and adapted flying wire  
 In 2015... Making lightest and most rapidly

**Flame part**  
 We made flame, sable, center wings, and mount between cockpit and wings.  
 In 2015... Reconsidering work and epoxy resin

**Propeller part**  
 We made 2 blades propeller which mainly made from balsa. It was designed each year.  
 In 2015... Optimizing design program

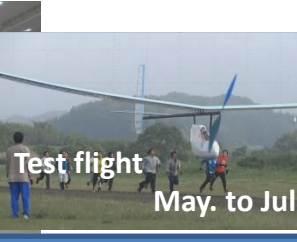
**Steering part**  
 We made steering system which was adopted wire linkage. Most parts were made by carbon.  
 In 2015... Improving around wiring

**Driving part**  
 We made driving system. Power was transmitted by shaft made by carbon.  
 In 2015... Adopting new grease

**Fairing part**  
 We made fairing which made by expanded polystyrene and balsa.  
 In 2015... Designing considerable cross wind

**Avionics part**  
 We made speed, altitude, GPS, rotations, rudder angle, gyro, acceleration sensor system.  
 In 2015... Developing wireless system

**CFRP**  
 We designed, laminated and heated CFRP beam ourselves. We could make optimum it.  
 In 2015... Designing easy lamination composition



Alternation

Making aircraft all year

### Next generation of Windnauts

In 2016, we refer to 2015's flight and management and improve them:

- Middle speed HPA → Designing 7.2[m/s] seek steering performance.
- Early roll out → Doing many test flight making an expert pilot.
- Actively contacts → Losing a work program between each section.

- Hot inside of fairing → Improve intake shape and establish making way.
- Indistinct schedule → Stipulate schedule and share it.
- Fragile steering and driving system → Be looking for programs and improve.